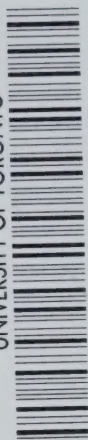


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JOURNAL

OF THE CANADIAN DENTAL ASSOCIATION
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Emergencies in dental practice — A. E. Dempster

Prevention and management of 16 complications in dental practice are described.

Review of restorative dentistry — D. B. McAdam

Latest information on amalgam, cast gold, gold foil, porcelain, dental cements, acrylic resin and adhesive restorations.

Safety and efficiency of methohexital in dental office anaesthesia — R. E. Simpson and Paul Rondeau

This ultrashort acting barbiturate is characterized by rapid recovery and minimal post-anaesthetic effects.

Reducing the incidence of dry socket: a clinical appraisal — A. E. Swanson

Gelatin sponge saturated with tetracycline-normal saline solution proves effective.

1963 Survey of dental practice: Report No. 2

Incomes from private practice and from part-time and full-time salaried employment are described.

Enquête de 1963 sur la profession dentaire: section 2

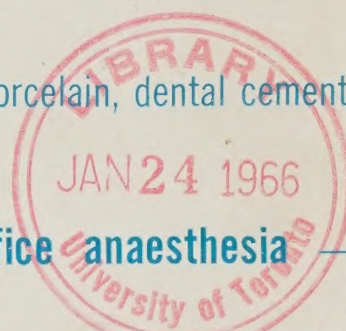
Revenu provenant de l'exercice privé et des emplois à temps partiel ou à temps complet.

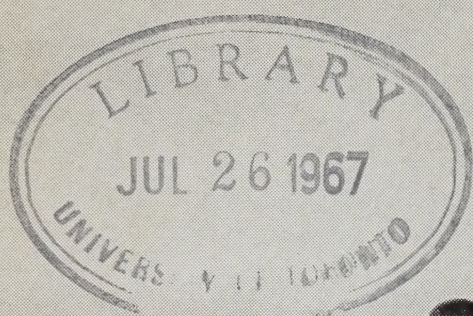
From precedent to doctrine — Editorial

Three recent judicial decisions which could affect the practice of dentistry.

A sociologist views the dental profession — Editorial

Are dentists losing control over their destiny? Will the computer scientists chart the future of our profession?





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References: 1. Hiatt, W. Local anesthesia; history; potential toxicity; clinical investigation of mepivacaine. *Dent. Clin. North America* p. 243, July 1961. 2. Dobbs, E.C. and Ross, N. The new local anesthetic Carbocaine. *New York State D.J.* 27:453, Nov. 1961. 3. Weil, C., Santangelo, C., Welham, F.S., and Yackel, R.F. Clinical evaluation of mepivacaine hydrochloride by a new method. *J.A.D.A.* 63:26, July 1961.

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Emergencies in dental practice

A. E. Dempster, DDS, Ridgetown, Ontario

The handling of syncope, pain, haemorrhage, sensitivity reactions, dry socket, fractured or embedded roots, exposure of the maxillary antrum, foreign bodies, fractures, trismus, swelling and ecchymosis is described. The author also outlines measures for the management of respiratory emergencies, cardiovascular emergencies, shock, and central nervous system emergencies. He details an armamentarium and a list of drugs for emergency use in dental practice.

■
L'auteur décrit les traitements appropriés pour la syncope, la douleur, l'hémorragie, les réactions allergiques, l'alvéolite, l'ouverture des sinus maxillaires, la présence de corps étrangers, les fractures, le trismus, l'enflure et l'ecchymose. Il décrit aussi dans ses grandes lignes le traitement des accidents respiratoires et cardio-vasculaires, du choc, des complications d'origine nerveuse. Il décrit en détail l'instrumentation et les médications d'une trousse d'urgence.

Webster's Dictionary¹ defines emergency as "an unforeseen occurrence or condition calling for immediate action." Emergencies in the dental office are not a frequent event, but when one does occur it can be severe enough to threaten the life of the patient. The dentist should familiarize himself with the signs and symptoms of all emergency conditions and be prepared to render appropriate treatment (Table 1). This does not imply that he should take the place of the physician.² However, he can and must equip himself to diagnose and manage effectually those cases in which prompt and correct therapy ameliorates the patient's condition, or even saves his life.

DENTAL EMERGENCIES

These consist of circumstances which the dentist is expected to diagnose and for which, in most instances, he should render terminal treatment. The majority of these emergencies are caused by him. Thus, he must be able to manage them competently.

Syncope. — This is the commonest emergency in the dental office.³ It is the di-

TABLE 1 Diagnostic features and recommended treatment for dental office emergencies.

Diagnosis	Signs and symptoms	Aetiology	Treatment
Syncope	Pallor, cold sweat, rapid thready pulse, faintness	Cerebral anaemia	Supine position Aromatic spirits of ammonia by inhalation Oxygen
Toxicity to local anaesthetic agents	CNS stimulation: talkativeness, apprehension, excitation, increased pulse and blood pressure, convulsions. If not controlled, CNS depression: unconsciousness and death	Overdose, injection into blood vessel, idiosyncrasy	Pentobarbital (Nembutal), slowly I.V. until stimulation is controlled, or secobarbital (Seconal) Oxygen
Allergy	Urticaria, pruritus, wheezing, coughing, angioneurotic oedema (mild reaction)	Hypersensitivity (antigen-antibody reaction)	Diphenhydramine (Benadryl) 20-40 mg. I.V. or I.M., or chlorphenpyridine (Chlor-Trimeton) 10 mg. I.V. or I.M.
Anaphylactic reaction	Acute circulatory collapse, acute respiratory collapse, unconsciousness (severe reaction)	Hypersensitivity (antigen-antibody reaction)	Oxygen under positive pressure Adrenalin 0.5 ml. of 1:1,000 solution I.M. or I.V. If necessary, phenylephrine (Neo-Synephrine) 2-5 mg. I.M. or I.V.
Angina pectoris	Substernal pain, pain radiated to left arm	Inadequacy of coronary circulation	Amyl nitrite by inhalation Nitroglycerine tablet 0.3 mg. sublingually
Coronary occlusion	Severe viselike substernal pain and choking. May last for 30 minutes	Inadequacy of coronary circulation	Keep patient at rest Oxygen Morphine sulphate 1/6-1/4 gr. I.V. or I.M.
Barbiturate depression	Respiratory depression (slow, weak, shallow respiratory movements)	Overdose, idiosyncrasy	Oxygen
Epileptic seizures	Vigorous movements of arms, legs, and neck. Convulsions and unconsciousness	Unknown	Restrain patient Prevent patient from biting tongue

rect result of a decrease in the blood supply to the brain. Precipitating factors are psychic shock, pain, headache, extreme fatigue, emotional upset, a poorly ventilated room, nausea, dehydration, or anything that makes the patient excessively apprehensive.^{4,5}

To avoid this hazard an evaluation of the patient's medical history and physical status is essential. He should be questioned as to whether he has ever fainted when given a local anaesthetic. If the response is affirmative, the dentist should anticipate syncope and employ premedication. Such episodes can often be forestalled by observing changes in the skin

colour and keeping suspected candidates in a supine position following injection.^{6,7}

The following premonitory signs and symptoms should also alert the dentist:^{4-6,8,9}

1. The patient may complain of warmth and dizziness; he feels uncomfortable, weak, giddy, and perspires profusely; yet there is coldness of the extremities. To use Kogan's description, he is "bathed in cold perspiration."⁸

2. The face is pale or ashen grey.

3. The patient may experience nausea.

4. The pulse rate is thready and rapid; just prior to fainting the pulse becomes slow and feeble.

5. Pulse pressure is decreased.

6. Respiration is relatively normal (distinguishing syncope from shock).

Unconsciousness may last for a few seconds or as long as 10 minutes. Nausea, weakness, and pallor may last for several hours. The foregoing signs and symptoms are indicative of syncope. If, however, there is any marked change in the respiratory pattern accompanied by cyanosis, extreme pallor, ashen grey colour associated with extreme tachycardia, bradycardia, or other arrhythmia not previously present, or if the pulse is inaudible, one can be fairly certain that something more severe than fainting has occurred.³

Treatment consists of maintaining a patent airway, repositioning the patient and administering mild stimulants.^{4,6,8-11} The chief obstructing agent is usually the tongue. Correct this either by pulling the tongue forward, or pressing both angles of the mandible forward. Aspirate any collection of mucus, saliva, and blood. The head must be lower than the main bulk of the body. Loosen tight clothing and place a cold towel on the forehead. Finally, hold a piece of gauze saturated with aromatic spirits of ammonia near the patient's nose. Oxygen may also expedite a return to consciousness. Artificial respiration may be necessary.

Pain.—Laskin¹² maintains that facial pain radiates from three distinct areas—the dentition, maxillary antrum and temporomandibular joint.

Odontogenic pain may be associated with pulp pathosis or pericoronitis related to impacted teeth.¹³ Pulp hyperaemia, pulpitis, or necrosis may be caused by gross physical trauma, microtraumata from malocclusion, proximity of large restorations, frank pulp exposures with bacterial invasion, or chemical irritants. Diagnosis requires careful examination including pulp vitality tests, tests for thermal response, radiographs, and examination of large fillings and deep caries. The treatment is correction of the local causative factor. Pericoronitis associated with impacted teeth is especially common in the mandibular third molar region. Radiographs are necessary to determine the nature of the impaction and localization of

the acute pericoronal inflammation. Treatment may be conservative (irrigation of the flap of tissue with hydrogen peroxide until the acute phase is resolved or the tooth has fully erupted) or radical (extraction of the impacted tooth).

Pain of antral (sinus) origin is relatively uncommon since the sinuses are not very susceptible to pain response. Diagnosis and treatment depend on differentiating sinus pain from pain of dental origin.

A primary cause of temporomandibular joint pain arises from dysfunction of the joint associated with an occlusal abnormality. Predisposing factors, in order of frequency, are premature occlusal contact, interferences on balancing side, and interferences on working side. The treatment is occlusal correction by grinding.

Symptoms of trigeminal neuralgia (*tic douloureux*) are rarely mistaken for pain of dental origin.¹⁴ Emergency treatment is blockage of the affected branch of the fifth cranial nerve by deposition of ½-1 ml. of absolute alcohol at the appropriate foramina.¹³

Postoperative pain is alleviated by small doses of analgesics administered at brief intervals and by cold packs applied for 30 minutes of every hour for 24 hours. Delayed pain lasting for longer than 24 hours or beginning three to five days after a surgical operation is almost always due to infection.¹⁵

Haemorrhage.—Discussion here is confined to the treatment of locally induced haemorrhage.¹⁴

Primary haemorrhage occurs directly after the operation. It may be due to laceration of soft tissues or may stem from the operation itself. This type of bleeding is controlled by suturing at the time it occurs or at the end of the operation. If bleeding persists, search for a severed blood vessel and tie it off with plain catgut; then apply pressure with sterile gauze pads.

Intermediate or postoperative haemorrhage occurs 8-10 hours after the operation. If due to sharp edges or spicules of bone in the socket, the irritated area must be re-opened, the bone smoothed with files, and the spicules removed with ron-

geurs and curettes. Faulty suturing may also cause bleeding of this type. Sutures may be either too tight, may tear because of excessive tension, or may slough prematurely. To treat, either re-anaesthetize the area and re-suture the wound, or apply pressure to the area with gauze sponges saturated with adrenalin 1:1,000. A further cause of intermediate haemorrhage is excessive curettage of the socket. Bleeding may also be induced by sucking the clot or through premature use of a mouth wash. Pressure application of gauze sponges soaked in adrenalin 1:1,000 easily controls this type of bleeding.

Secondary haemorrhage, which occurs 48 hours or more after an operation, is invariably due to infection. Where infection results in liquefaction of the clot, bleeding is due to incomplete drainage. To treat, pack a surgical dressing of 5 per cent iodoform gauze or absorbable gelatin sponge lightly into the socket. Change the dressing every other day until healing is initiated. Prescribe a suitable antibiotic.

Sensitivity Reactions.—Drug allergy or idiosyncrasy is a condition of hypersensitivity in which the administration of a medicinal agent in a quantity that is non-toxic for the patient is followed by an unusual but characteristic reaction.⁸

Anaphylactic shock can manifest within one minute after injection by loss of consciousness with severe anoxia. The patient exhibits sudden circulatory and respiratory collapse, decreased blood pressure, a weak or imperceptible pulse, and nausea and vomiting.^{3,11,12} To treat, place the patient in a supine position and call a physician, maintain respiration with oxygen under pressure or by mouth-to-mouth resuscitation, and inject $\frac{1}{2}$ -1 ml. adrenalin 1:1,000 intramuscularly or intravenously. If rapid improvement does not follow, inject 2-5 mg. phenylephrine (Neo-Synephrine) intramuscularly or intravenously. In any event, the patient should be admitted to hospital.^{11,12}

Angioneurotic oedema is treated in a similar manner. With acute oedema of the larynx, a tracheotomy may be necessary.¹⁴

Urticaria and dermatitis manifest by

generalized itching associated with transient red blotching of the skin and mucous membranes occurring shortly after an injection.¹¹ For mild reactions administer an oral histaminic drug like diphenhydramine (Benadryl) 50 mg. In more severe cases inject $\frac{1}{2}$ ml. adrenalin 1:1,000 subcutaneously.¹²

Asthma manifests by wheezing, shortness of breath and tightness in the chest after an injection.¹¹ To treat, (1) inject 0.4-0.6 ml. adrenalin 1:1,000 subcutaneously, (2) administer oxygen continuously, and (3) avoid the use of any synthetic narcotics.

The occurrence of any allergic reaction should be permanently recorded, the nature of the allergen noted, and the patient warned of his sensitivity. Avoid further use of the offending drug.

Toxic reactions (Table 2) manifest by stimulation and subsequent depression of the central nervous system. Differentiation between toxic overdose and idiosyncrasy depends upon the amount of drug used, the presence of unusual symptoms not allergic in nature, and assurance that an inadvertent intravenous injection has not been accomplished.³ Treatment of central nervous system stimulation aims at modifying or stopping convulsions. Oxygen is administered to combat asphyxia. Treatment of CNS depression includes artificial respiration, forced administration of oxygen, and administration of a vasopressor drug to maintain blood pressure.

In hypersensitivity, the patient develops all the signs and symptoms of a toxic reaction. The diagnosis and treatment are identical.

Dry Socket (Alveolar Osteitis).—This condition manifests by severe pain beginning on the second or third day after the extraction. This pain is very often referred to the ear.¹² A foul odour emanates from the mouth and there is considerable pain when the socket is touched. These symptoms may persist from a few days to six weeks. On examination, signs of clot disintegration and perhaps a bare exposed socket will be evident. Treatment consists of irrigation of the socket to remove necrotic material, and applica-

TABLE 2 Signs, symptoms and treatment of toxic overdose.

Signs and symptoms	Treatment
1. CNS stimulation* ranging from a mildly inebriated and talkative patient in whom movements are unco-ordinated blood pressure is increased pulse is fast to a more severely reacting patient who experiences blurred vision nausea and vomiting muscular twitching convulsions	1. Treatment is aimed at modifying or stopping the convulsions and supplying oxygen to combat asphyxia sodium thiopental adequate airway artificial respiration or forced oxygen
2. CNS depression including drowsiness loss of consciousness muscular relaxation pale and moist skin decreased blood pressure weak, thready, rapid pulse shallow low respirations	2. Treat by artificial respiration or forced oxygen administration of a vaso-pressor to maintain blood pressure

*Monheim reports that the initial toxic response to lidocaine is usually one of depression, but if absorbed rapidly or given in large doses, it may cause convulsions.

tion of iodoform gauze strips impregnated with a topical anaesthetic (benzocaine) combined with an obtundent (eugenol).¹² Each day, as long as pain persists, the socket should be irrigated and the gauze strips changed.

Removal of Fractured and Embedded Roots. — The only real emergency is to decide whether to recover or to leave a root or root tip. Removal is contra-indicated when the root is dangerously near the antrum or mandibular canal, when the root tip is healthy and lying under a well-functioning denture, or when removal would necessitate destruction of an excessive amount of buccal plate and a removable denture is being considered. Removal is necessary when fragments exhibit pathosis, the patient is critically ill due to oral sepsis, a root tip interferes with the function of a denture, or benefits overshadow the risks.¹⁶

Roots lost through the socket may be removed in the following way. If the root

is trapped under the antral lining, attempt to grasp it with haemostats after raising a buccal flap anterior or posterior to the root. If the root is lost in the antrum, close the orifice immediately with an absorbable gelatin sponge and suture the socket tightly. Refer the patient to an oral surgeon. Do not enlarge the socket or antral opening. This reduces the risk of formation of an oro-antral fistula.⁵ If the root is in the inferior dental canal, pack the socket and suture it closed. Because of the proximity of the mandibular bundle, do not attempt to remove the root. Instead, refer the patient to an oral surgeon for recovery of the root.

Exposure of the Maxillary Antrum. — If the antral mucosa is intact, suture the socket closed and let it fill in with a blood clot. Do not traumatize the area because this may cause perforation of the antral mucosa. If the defect is small, trim the buccal alveolar process and undermine the tissue edges to facilitate a more com-

plete closure. Pack the socket with absorbable gelatin sponge moistened in saline solution (to reduce bleeding and aid in clot formation) and close with sutures. If the antral mucosa is perforated, place sterile gauze sponges over the socket immediately and suture the socket. Instruct the patient not to rinse or sneeze for one week, and administer antibiotics.^{12,14}

Foreign Bodies.—The one emergency directly attributable to the presence of a foreign body is acute respiratory obstruction. This can be treated by removal of the offending agent or by establishing a secondary airway.¹⁷ To remove a foreign body from the airway, the patient's head is tipped back until the chin is on the same horizontal level as the thyroid cartilage. Retrieve the foreign body with laryngeal forceps while standing behind the patient. Establishment of a secondary airway is discussed under 'Respiratory Emergencies.'

Fractures.—Fractures of the alveolar process or the tuberosity call for immediate attention.

In fracture of the alveolar process, if the bone is essential for ridge contour and remains attached to mucoperiosteum, separate the bone from the tooth and suture it into position. Chances for reattachment are quite good, especially if the patient is young. If the bone is detached from the mucoperiosteum, do not retain it.¹²

Tuberosity fracture may occur when extracting an isolated molar with backward curving roots. The choices of subsequent action are as follows: (1) Discontinue the extraction immediately, raise a buccal flap in the area, and use rongeurs or a bur to remove enough of the buccal plate so that the tooth can be removed from the buccal aspect. Suture and place an acrylic splint for immobilization of the fractured portion. (2) An alternative is to discontinue the extraction, allow the fracture to reunite to some extent for three to four weeks, and then proceed to remove the tooth, taking the precautionary measures mentioned above. (3) A third possibility arises if immediate removal is

necessary, and a portion or all of the tuberosity adheres to the root but is not separated from the mucoperiosteum. In that event separate the bone from the root with an elevator, and stabilize the fragment by suturing the overlying gingival tissue.

Trismus.—Through common usage, this word refers to any muscle soreness or limitation of motion. Trismus is attributable to needle insertion, irritating solutions, haemorrhage, or low-grade infection within the muscle. Treatment comprises mild exercises, such as chewing gum and hot mouth washes. Drug therapy—analgesics and/or antibiotics—may be necessary in severe cases.

Swelling.—This complication may be due to trauma, infection, allergy, or haemorrhage. The specific cause should be treated as described elsewhere in this article.

Ecchymosis.—The patient displays facial discolouring ranging from light red to deep bluish purple. Ecchymosis is usually due to trauma or extensive surgical intervention involving removal of much bone. First, any interstitial bleeding is stopped either by tying off a blood vessel or, usually, by applying ice packs. Subsequent resolution of the blood pigments is achieved by the application of heat to the area; sometimes enzyme products, such as papain, are utilized.

MEDICAL EMERGENCIES IN THE DENTAL OFFICE

These are circumstances for which the dentist must provide instantaneous treatment, but the exact clinical diagnosis and terminal solution are accomplished by the physician.

Respiratory Emergencies.—When acute mechanical respiratory obstruction occurs the dentist should determine immediately the cause and location, and should proceed with emergency treatment. The following techniques progress from the conservative to the radical and should be utilized in that order.

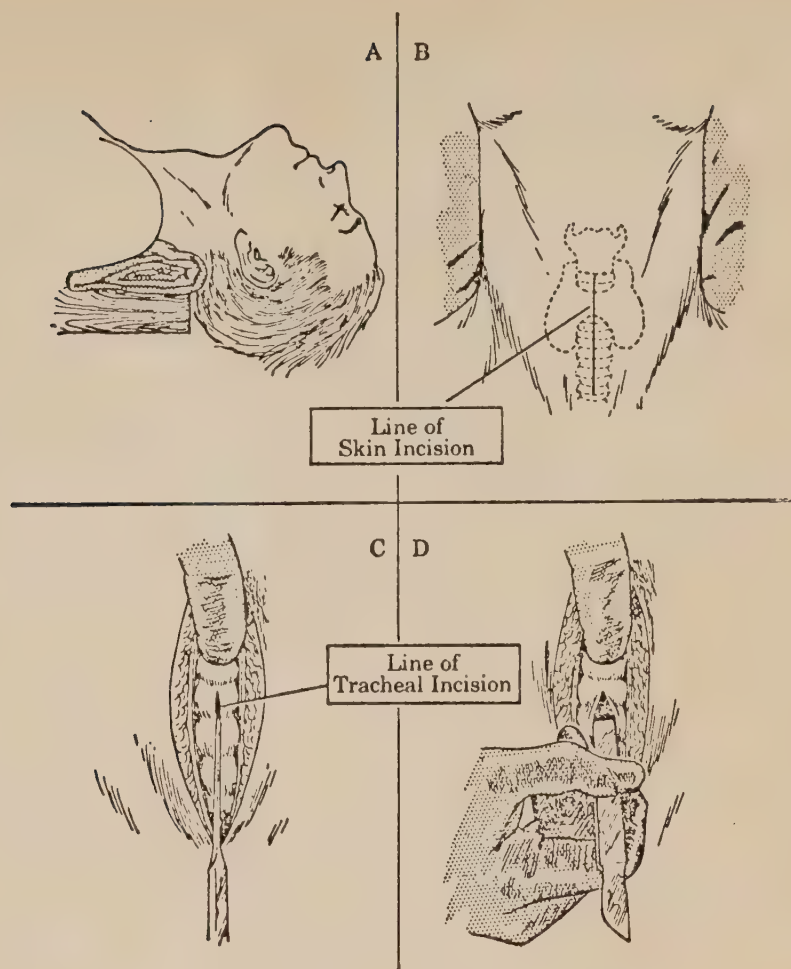


FIGURE 1 Tracheotomy technique (The Merck Manual of Diagnosis and Therapy, Ed. 10, Merck Sharp & Dohme Research Laboratories).

(a) Assist the patient in his own natural defence against airway obstruction—coughing, swallowing, gagging or regurgitation may remove the obstruction. Aspirate any regurgitated fluids or small solid particles.

(b) Administer oxygen only if the obstruction is incomplete as indicated by wheezing, laboured respiration and lack of cyanosis.

(c) Remove the foreign body with laryngeal forceps as described under 'Foreign Bodies.'

(d) Sage¹⁸ recommends that the dentist, untrained in tracheotomy, should insert a No. 14 needle through the cricothyroid space or upper tracheal rings, and attach this, by means of an adapter and tube, to an oxygen cylinder. With this method sufficient oxygen to maintain life for at least an hour can be administered.

(e) If the emergency is sufficiently acute and death imminent, Monheim³ advocates tracheotomy or tracheostomy even if the dentist has never done one be-

fore. Anaesthesia by local infiltration is desirable, but in very urgent cases there may be no time for any anaesthetic. The patient is placed supine and the head is hyper-extended. Infants should be wrapped in a blanket. A very definite, bold midline incision is made through the skin, superficial fascia and pretracheal muscles. This incision begins well below the thyroid cartilage and terminates slightly above the sternal notch. When the anterior tracheal wall is reached, identify the tracheal rings. Incise the third and fourth and, if necessary, the fifth ring. Insert the cannula and finally, control the bleeding (Figure 1).

Cardiovascular Emergencies. — Practically all are secondary to respiratory complications.³ Kogan⁸ presents a very concise yet informative report on these emergencies.

Angina pectoris manifests by substernal pain which is brought on by exertion and lasts for seconds to minutes. The pain

sometimes radiates to the upper extremities, neck or jaw. Physical effort must be restricted and vasodilators given at once. These include nitroglycerine (0.3-0.6 mg.) administered sublingually and amyl nitrite (0.2 ml.) inhaled.

Acute myocardial infarction (coronary thrombosis) manifests by persistent substernal pain. The pain is agonizing, vise-like, and comes on abruptly. The duration is 30 minutes or more. Occasionally, the pain is mild initially and progresses in severity. It may radiate to the extremities and neck. The patient may be cyanotic, bathed in cold sweat, dyspnoeic, weak, and frequently nauseated. Blood pressure is low and the pulse barely perceptible. The pain is of greater severity and duration than that of angina pectoris. Treatment consists of keeping the patient at rest. Combat dyspnoea, pain and shock by oxygen therapy. Morphine sulphate (1/6 - 1/4 gr.) may be injected intramuscularly or intravenously.

Cardiac arrest is diagnosed by noting the absence of carotid pulsation. Checking the radial pulse is unreliable. The first and only immediate consideration is to restore the heart beat and the peripheral circulation, particularly to the brain.⁵ Administer closed chest cardiac massage concomitantly with mouth-to-mouth resuscitation.²² (The physician may choose to inject a vasopressor agent directly into the heart.)

Shock. — General or primary shock is a common cause of collapse. It follows a sudden painful or prolonged stimulation of afferent nerves. Lack of proper anaesthesia has been suggested as a probable cause, but many local anaesthetic solutions do not block off pressure receptors. The signs are pallor due to low blood pressure, sweating, very shallow respiration, feeble and slow pulse, and ultimately unconsciousness.⁵ Treatment includes placing the patient in a supine position with the head lower than the extremities, administering artificial respiration and oxygen, and injecting vasopressor drugs in all types of severe shock and in milder instances when it is known to be the result of primary vasodilation. Norepinephrine is perhaps the most potent vasopressor.⁸

Local anaesthetic agents and penicillin may also precipitate reactions with shock-like manifestations.²³

Signs, symptoms and treatment of sensitivity to local anaesthetic agents have been described previously under 'Toxic Reactions.'

The two most significant anaphylactoid reactions to penicillin are the delayed serum sickness type and immediate anaphylactoid variety. Unfortunately, there is no certain method by which those who are sensitive to penicillin can be recognized.²³ General treatment involves placing the patient in the supine position with the head lower than the feet, administering artificial respiration, and applying pressure above the site of any subcutaneous or intravenous injection of the suspected allergens. Subcutaneous injection of adrenalin (0.25-0.5 ml. of aqueous solution 1:1,000) will give relief if administered at the onset of symptoms.²³ In protracted shock with a thready pulse and persistently low systolic blood pressure, inject 5 per cent glucose in normal saline with 10.5 mg. phenylephrine (Neo-Synephrine) intravenously.

Central Nervous System Emergencies. — Practically all are secondary to respiratory emergencies.³ Convulsions may be caused by toxic overdose or hypersensitivity to an anaesthetic, or may be due to epileptic seizure manifested as either petit or grand mal. In all cases treatment consists of placing a well-padded tongue blade between the teeth and pulling the tongue forward to prevent injury and provide a patent airway.³ The patient must be restrained to prevent injury to himself and the attendant.⁵ Pentobarbital [Nembutal] (100-300 mg.) given slowly intravenously or secobarbital (Seconal) usually alleviate the seizure.

EMERGENCY ARMAMENTARIUM AND DRUGS

Every general practitioner should have the following emergency equipment and drugs in a readily accessible location:^{9,24,25}

Oxygen with face mask and rebreathing bag

Suction apparatus

Mechanical mouth prop
 Oropharyngeal airways
 Rubber tourniquet
 Luer-Lok syringes and needles: syringes—20 ml. and 2 ml.; needles—No. 20 and No. 23

Sphygmomanometer

Nitroglycerin tablets (0.3 mg.)

Aromatic spirits of ammonia.

An intravenous short-acting barbiturate, such as sodium thiopental (Pentothal), in injectable form

Adrenalin 1:1,000 in 1 ml. carpules

Anti-histaminics, such as diphenhydramine (Benadryl), in injectable form.

EMERGENCIES AND THE LAW

As to consent for emergency treatment, Harper²⁶ notes: "... in an emergency, it is held generally that there is implied consent to do those things necessary at the time to save the life of the patient or to preserve his health, he being unable to give consent, or to refuse it This judicial attitude does not include questionable emergencies, and the practitioner should be sure of the indication for the immediate need of his services before proceeding with treatment."

The dentist is not held a guarantor of his services, but he is responsible in all professional procedures, routine or emergency, for the exercise of reasonable skill, care and prudence.

SUMMARY AND CONCLUSIONS

Deaths in dental offices occur every year. When an acute emergency arises and a physician is not available, the dentist must assume responsibility for the immediate diagnosis and treatment. Successful treatment depends upon prompt recognition of clinical manifestations, the availability of proper equipment and drugs, and a well-organized plan for just such an emergency.⁸ Fundamental to the

management of most emergencies in dental practice is the need to support respiration and circulation.

Based on an essay awarded second prize in the Canadian Dental Association War Memorial Award Competition, 1965.

1. Heilson, W. A. et al. Webster's new international dictionary. Ed. 2. Springfield, G. and C. Merriam Company, 1961.
2. Reynolds, Clifford. Treatment of emergencies. *Oral Health* 48:437, 1958.
3. Monheim, L. M. Local anesthesia and pain control in dental practice. Ed. 2. St. Louis, Mosby, 1961.
4. Atterbury, R. A. and Vazirani, S. J. Management of simple fainting. *D. Digest* 68:276, 1962.
5. Helsham, R. W. Simple emergency procedures in exodontia and oral surgery. *Austral. D. J.* 4:268, 1959.
6. Siegel, Elliott. Approach to the management of medical emergencies in a dental office. *J. Ontario D. A.* 36:12, 1959.
7. American Dental Association. Council on Dental Therapeutics. Treatment of emergencies in the dental office. *D. Abs.* 3:442, 1958.
8. Kogan, Stanley. Medical emergencies for dentists. *Oral Surg., Oral Med. and Oral Path.* 11:246, 11:359, 1958.
9. Leonard, W. B. and Lapeyrolerie, F. M. Treatment of emergencies in the dental office. *Quart. Nat. D. A.* 19:5, October 1960.
10. Dobbs, E. C. Prevention and treatment of dental office emergencies. *J. Am. D. Hygienists' A.* 36:107, 118, 3rd quart. 1962.
11. Kushner, Edward. Emergencies in the dental office. *D. Survey* 31:163, 1955.
12. Laskin, D. M. Management of oral emergencies. Springfield, Thomas, 1964.
13. Cooksey, D. E. Diagnosis of acute facial pain. *D. Clin. N. America* p. 463, July 1957.
14. Berlove, I. J. Dental-medical emergencies and complications. Ed. 2. Chicago, Year Book Medical Publishers, 1963.
15. LaDow, C. S. Accidental exposure of the maxillary sinus during dental operations. *D. Clin. N. America* p. 573, July 1957.
16. Durbeck, W. E. Removal of fractured and embedded tooth roots. *D. Clin. N. America* p. 379, July 1957.
17. Chipps, J. E. Dentist's role in the management of foreign bodies. *D. Clin. N. America* p. 391, July 1957.
18. Sage, H. H. Medical and surgical emergencies in dentistry. *New York J. Den.* 28:260, 1958.
19. Ross, J. C. Essentials of surgery for dental students. Ed. 2. Edinburgh and London, Livingstone, 1952.
20. Merck manual of diagnosis and therapy; a source of ready reference for the physician. Ed. 10. Rahway, New Jersey; Merck, Sharp and Dohme, 1961.
21. Rossi, D. J. Controlling hemorrhage in exodontia and oral surgery. *D. Clin. N. America* p. 349, July 1957.
22. Gehrig, J. D. Dental emergencies. In: Dille, J. M. Drug therapy for dentists. With special section on dental emergencies by J. D. Gehrig. Chicago, Year Book Medical Publishers, 1963.
23. Seeley, S. F. and Frank, O. M. Management of shock in the dental office. *D. Clin. N. America* p. 431, July 1957.
24. Chatwin, J. V. P. and Edwards, L. H. Resuscitation kit for the dental office. *J. Canad. D. A.* 25:489, 1959.
25. Rosencrans, Martin and Malkin, Morton. Chart to aid in the management of dental office emergencies. *D. Digest* 68:65, 1962.
26. Harper, N. A. Legal aspects of emergency treatment. *D. Clin. N. America* p. 593, July 1957.

Review of restorative dentistry: 1964-65

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The year 1964 brought numerous publications relating to restorative dentistry. Findings from pulp studies, effective instrumentation, employment of amalgam, cast gold, gold foil, porcelain, dental cements, acrylic resin, adhesive restorations, and periodontics are enumerated to help the practitioner select, modify and improve his treatment of patients on a scientific basis.

■
L'auteur résume bon nombre d'articles publiés en 1964 et ayant trait à la dentisterie restaurative. On y décrit des études faites sur la pulpe vivante, l'instrumentation, l'amalgam, l'incrustation, l'aurification, la porcelaine, les ciments dentaires, les résines acryliques, les restaurations adhésives et la périodontie, dans le but d'aider l'omnipraticien à traiter ses patients de façon plus scientifique et plus moderne.

Restorative dentistry embraces all aspects of dentistry concerned with the preservation of a tooth in situ. It therefore in-

cludes operative dentistry, periodontics, endodontics, and all related fields of research. To review in depth the literature on these topics published during the 12 months of May 1964 to May 1965 would require the co-ordinated efforts of contributors from each of the preceding specialties and would extend well beyond the scope of this paper. Instead, I have simply reviewed as much of the related literature as possible and prepared a résumé of articles I found significant. While not all dental journals were available for preparation of this paper, of the publications read the following articles were found most interesting.

Status in May 1964

In May 1964 Phillips et al¹ published an extensive "Report of the Committee on Scientific Investigation of the American Academy of Restorative Dentistry." Their report reflects the status of our knowledge at the beginning of the period under review. This article is so comprehensive that it is reviewed here at length. Nevertheless, readers are urged to consult the original text since many pertinent details have perforce been omitted from the present review.

ORAL MICROBIOLOGY

No significant quantitative or qualitative differences were noted between the microbiota from the gingival crevice of normal and periodontally-involved individuals. Gingival debris consisted almost entirely of bacteria, with spirochaetes being the only group of organisms that increased significantly in periodontal disease.

Continuous acid production may take place within the dental plaque between meals. This is because *Streptococcus mitis* can synthesize lactic acid from polysaccharides.

Caries shows progressively decreasing pH as one goes from the surface to the inner part of the lesion—a pH of 4.91 decreasing to 3.88. This suggests the importance of bacteria-produced acids in the progression of the caries lesion.

SYSTEMIC FACTORS AND ORAL DISEASE

It was reported that Hall's experiment suggested that the caries tendency is not transmitted genetically. Phillips noted that the increase of caries in Ghana is proportional to the inroads of civilization and its refined carbohydrate diet. The transmission of experimental caries in rodents, done by Keys and Fitzgerald, simulated a transmissible infectious disease.

FLUORIDE AND DENTAL CARIES

It was shown that acidulated fluoride phosphate is taken up readily by surface enamel making it highly resistant to etching and acid dissolution. Sodium monofluorophosphate is more effective than stannous fluoride in dentifrices according to Finn and Jamieson.

DENTAL MATERIALS

Phillips reiterated the established fact that all present filling materials leak. While the exact effect of such leakage patterns has not been established, it does much to explain the relative success and

failure of the various restorations. Amalgam succeeds due to the seal established by the corrosive products forming between the filling and the adjacent tooth structure. Therefore, in this respect, amalgam improves with age. Conversely, the failure of gutta percha to form any seal defeats it as a filling material. Zinc oxide and eugenol form an exceptionally good initial seal and this provides superior pulp protection. Up to May 1964, no resin system was capable of bonding chemically with tooth structure under clinical conditions.

The properties of resin-chloroform type cavity varnish were described in the following terms: (a) minimizes the leakage around a restoration and (b) partially prevents the acid from a silicate or oxyphosphate cement from penetrating the deep dentine of a cavity preparation. The presence of this varnish supplemented rather than replaced normal pulp protection procedures. For best effects the application should be as a continuous coating free of voids. Varnish on the margins of the cavity may be left in place except in silicate cement preparations.

Silicate cements had experienced no significant improvement in recent years. The addition of glass fibres proved of no benefit. Their fluoride ion content, however, reacted with the adjoining enamel and dentine to reduce enamel solubility substantially. For this reason cavity varnish should be kept away from the marginal area of silicate restorations.

Zinc phosphate cement as a base under a restoration might in time be replaced by some of the newer zinc oxide and eugenol cements. The latter had adequate strength to permit condensation of amalgam, yet were more favourably tolerated by deep tooth structure. But until there were zinc oxide-eugenol cements that not only retained their favourable properties but also possessed appreciably greater strength, zinc oxide-eugenol could not replace zinc phosphate as a permanent cementing medium in areas subject to stress.

Resin restorations suffered from the following limitations: (1) marginal leakage, (2) absence of germicidal or anticariogenic features, and (3) high thermal

coefficient of expansion (seven times that of tooth structure). The initial adaptation of the material was considered of paramount importance in resisting the tendency to pull away. Brush technique along with the use of a 'primer' was advocated. Cavity varnish was not used. Colour stability was considered adequate by 1964. Acrylic resins were limited in their properties and Phillips suggested that improvements in this field would probably come from a different type of resin.

The following points were noted about amalgam: (1) marginal weakness was an inherent weakness; (2) fine-cut alloys produced restorations with surface characteristics superior to coarse-cut alloys; (3) comparable clinical results were obtained using mechanical condensation or firm hand pressure; (4) bulk in itself was not clinically as important a factor as was once thought; and (5) a meticulously dry field was essential for success using zinc or non-zinc alloy.

The use of pellets seemed desirable, though they could not be stored with mercury in the capsule. The success of amalgam restorations required the residual mercury content to be less than 55 per cent. Any increase in this ratio led to marginal breakdown and corrosion. A 1:1 ratio was successful in limiting this hazard provided adequate trituration was carried out and condensation took place with heavy hand pressure using fine instruments. A pressure and mulling device as described by Ambrose was termed a satisfactory solution.

Areas of current research (May 1964) in amalgam were (1) investigation of spherical alloy particles, (2) the addition of a dispersion phase (a silver-copper eutectic) to the conventional alloy, and (3) the development of gallium alloys.

Of the resins used in crown and bridge procedures, none was universally superior.

Gold foil enjoyed renewed interest. The relative properties of structural foil, mat gold, and powdered gold were being studied along with techniques to use them.

Fused porcelain-gold procedures had proved satisfactory. The bond was very firm and free of leakage.

PULP: REACTION TO INSTRUMENTATION

It was known that the histological condition of the pulp does not necessarily coincide with the clinical symptoms. Thus, clinical sensitivity may not be an adequate gauge of the pulp's reaction. High speed may produce pulp damage not only through heat production but, more importantly, through heavy hand pressures. However, pulpal damage was more apt to occur when the turbine was used with air coolant rather than with adequate water spray. Cavity depth was another variable influencing the effect of the coolant. Carbide burs produced less pulpal damage than diamond or steel burs.

Schuchand termed dessication of tooth structure while operating as a controversial subject. Though pulpal damage was greater with dry coolant than with a wet technique, he believed that proper operating technique and accepted principles of cavity preparation were tolerated by normal pulps.

Of the corticosteroids, prednisolone was still being tested by Mosteller in May 1964. It reduced but did not eliminate pulpal inflammation in deep cavities. It also reduced or eliminated thermosensitivity in most teeth.

Air contamination occurred particularly when a water spray was used with the air turbine. The least amount of air contamination occurred with rubber dam and air used as a coolant.

May 1964 - May 1965

PULP

In the field of pulp studies, several articles were noteworthy last year. Gilmore² noted (1) that permanent fillings should not be attempted unless the pulp is normal. If there is evidence of pathological damage, only gross carious material should be removed until a pain response is elicited. A calcium hydroxide dressing is then sealed in the cavity with zinc oxide and eugenol cement. The cavity is re-opened in six weeks, the zinc oxide cement removed, the remaining carious material eliminated, and the filling inserted. (2) Dentine thickness should be

preserved to protect the pulp and prevent cusp fracture. He advised leaving discoloured dentine if the surface was hard. Retentive areas such as the occlusal dovetail need only be $\frac{1}{2}$ mm. below the dentino-enamel junction. (3) High-speed instruments produce less inflammation and less secondary dentine within the pulp chamber. This leaves the pulp more susceptible to injuries where the preparation is cut in sound dentine. Therefore, with full coverage preparation, an effective cavity liner and temporary treatment are required and an extended time allowed prior to cementation. (4) Gilmour recommended the use of high-speed instruments with water coolant even though the actual contact at the cutting site might be questionable. His review of the literature yielded conflicting reports on pulpal damage related to wet and dry cutting with and without pressure. (5) Gilmour urged that conservative tooth preparation be limited to areas with caries or potential caries. Pulp injury is more likely to occur due to the extension of the cavity than to caries removal. A cavity preparation using Black's principles was advised, but the extension of the cavity must be conservative. The isthmus width should be one-quarter the width of the intercusp space to prevent cuspal fracture. (6) Small diameter burs, less than 1 mm. diameter, were recommended to avoid over-extension and to limit temperature rise. (7) The routine use of the rubber dam is required for vision and maximum effect of filling materials. Finally, (8) new restorative techniques and methods of tooth reduction must never replace sound operative procedures.

The effect on the pulp of the various steps in full crown preparation was tested *in vivo* by Langeland and Langeland.³ One hundred and thirty-eight human teeth were divided into four groups and prepared for full coverage. The first group (Group A) comprised teeth that were extracted, sectioned, and examined histologically after the crown preparation was made. The second group (Group B) was similarly examined after the impression had been made. The third group (Group C) was examined after the temporary crown had been fabricated, and

the fourth group (Group D) after cementation. The cumulative effects of each of these procedures on the pulp were examined histologically.

Group A: After examining the pulps following crown preparation, the Langelands concluded that (1) air-water spray directed at the instrument-tooth contact prevents pulp injury; (2) if the rotating point is large or long, the spray must be directed accurately or be supplemented by water from the assistant's syringe; and (3) disks require water to be directed at the area of cutting.

Group B: No appreciable effect was attributed to crown preparation and impression taking except when stick compound was used. This adhered to the dentine.

Group C: These pulps were examined following crown preparation, impression taking, and the use of temporary coverage. Gutta percha produced an injurious effect. Self-curing resins produced a deleterious effect. Therefore, temporary resin crowns should be fabricated off the tooth and cemented with zinc oxide and eugenol cement. The latter anodyne cement will not counter the irritant effect of the preceding materials. The authors even recommended that if the temporary crown is to remain longer than 14 days, a gold band should be fitted accurately to the tooth margins and the temporary crown made over the band to preserve the gingival tissue. Prepared teeth should not be left unprotected.

Group D: These pulps were examined following crown preparation, impression taking, temporary coverage, and final cementation. The final cementation of the crown caused no reaction if the pulp had experienced no previous injury. Excessive drying or the use of sterilization procedures were discouraged.

The Langelands concluded that the injurious effects of these various procedures were cumulative and, if not carefully controlled, could result in pulpitis or pulpal death.

Much has been written about the effect of tooth cutting on the pulp. Sorenson⁴ took a different approach when studying the relationship of heat transfer to the rate of tooth removal. He pointed out that (1) dentine hardness has no effect on

either factor; (2) the rate of removal of tooth structure and the rate of heat transfer are related to the magnitude of the load; and (3) maximum heat transfer occurs with a lighter load whereas maximum tooth removal occurs with a heavier load. The heavier load produces greater tooth removal because larger chips are cut as more bur flutes are brought into action. Therefore, he suggested that the roughing-in phase be done with constantly applied heavier loads — a rather courageous suggestion and one that should be examined in his article before implementing.

Svare and Meyer⁵ tested the effects of acidity of silicate cement on the pulp and the amount of acid available for absorption and leaching into the dentine. He showed that over 5 per cent of the acid incorporated into the restoration is available for diffusion. Of this, 0.6 per cent is surface acid. He estimated that only 0.5 per cent of the total available acid, or 5 per cent of the free surface acid need be diffused to induce vascular thrombosis in a portion of the pulp.

Braden,⁶ in testing the thermal diffusivity of zinc oxide-eugenol and zinc phosphate cements, concluded that the thickness of the cement is more important in pulp insulation than the relative thermal conductivity of these materials.

Corticosteroids are still receiving wide attention. Dachi⁷ noted the effect of prednisolone on the thermal sensitivity and pulpal reaction of silicate restored teeth. He found prednisolone effective for these purposes though the usual means of pulpal protection must still be used.

Ehrman,⁸ in Australia, reported the clinical observations of 15 dentists over a one year period on the use of a corticosteroid-antibiotic combination. (Leder-mix A and B, Lederle — American Cyanamid Company) in pulp-involved teeth. Ledermix A, a water-soluble cream containing triamcinolone acetonide and demethylchlor tetracycline, is used in cases of acute serous pulpitis. Ledermix B is a cement containing the same materials and, among other ingredients, calcium hydroxide, zinc oxide and eugenol. The use of Ledermix B in temporary crowns apparently removed sensitivity to thermal stimuli, permitting cementation without

local anaesthesia. This cement could be left in a preparation as a base. The author compared it favourably with Mosteller's report on prednisolone. Mager⁹ also reported encouraging results with this material. Olsen¹⁰ of Denmark wrote favourably on the effectiveness of this product and suggested its usefulness in conservative endodontic therapy. A similar product (Aristomix) awaits approval by the Food and Drug Directorate of the Canadian Department of Health and Welfare and by the U.S. Federal Drug Administration.

A good approach to differential diagnosis of pulp conditions was supplied by Seltzer.¹¹

DENTAL MATERIALS

Kasloff¹² has published an excellent review of dental restorative materials and their behaviour patterns. The pertinent material advances were described as follows:

1. In amalgam cavity preparations, rounded pulpo-axial line angles as recommended by Mahler et al improve the stress-bearing design of the cavity. Conservative cavity preparation instrumented with fine hand condensers provides superior amalgam restorations according to Markley. Markley's threaded stainless steel reinforcing pins continue to prove successful. Eames' 1:1 amalgamation technique ensures correct mercury content.

2. Cast gold inlay techniques have blossomed with the advent of high-speed cutting instruments, reliable impression materials, and controllable laboratory procedures.

3. Gold foil continues to be the restorative material 'par excellence' for Class III and V restorations, aesthetics permitting. Kasloff mentions Baum's work with powdered gold which offers a promising addition to pure gold restorative procedures.

4. Porcelain bonded to metal, especially to gold alloys, is proving successful. Now, fused porcelain inlays may be made directly in a refractory investment.

5. Silicate cements remain unchanged. Their anticariogenic effect on adjacent

tooth structure keeps them in favour. Direct filling resins remain the dark horse in the restorative field.

6. Inlay cementation is best accomplished with zinc phosphate cements, colour notwithstanding.

7. Copal varnishes, routinely applied, are advantageous.

Amalgam. — Among additions to the literature on silver amalgam during the past year, mention should be made of Charbeneau's¹³ study on finishing and polishing procedures. He noted that the surface of amalgam examined microscopically is heavily pitted after carving, even if scrubbed with a wet cotton roll—a practice common to many dentists. A Robinson No. 11 soft bristle brush appeared to produce the smoothest surface using the following abrasives in sequence: flour of pumice, XXX Silex, levigated alumina, and tin oxide.

Naujoks¹⁴ conducted studies into the extent of mercury penetration into dentine. In vivo studies were made with amalgam fillings. In vitro studies were made with amalgam fillings containing radio-active mercury. Radio-autographs failed to show radio-active mercury in dentine after eight days. Chemical analysis failed to reveal mercury penetration into dentine even after several years. No mercury could be detected in the saliva after an amalgam filling had been placed.

Amalgam technique was described by Gibb¹⁵ who emphasized some common pitfalls. If a choice is necessary between the use of rubber dam and the air turbine, the former is preferable, he asserted. Materials of choice were noted. Describing a Class II cavity preparation, he listed the following common causes of failure: (1) unnecessary over-flaring of the proximal walls, (2) improper amalgam condensation of the bucco- and linguo-gingival line angles, and (3) lack of retentive form. Shoed cusps were recommended using Markley pins where needed. Cavity liners were noted and a custom contoured and reinforced matrix described. Amalgam mixing using a 50:50 ratio was outlined, as well as a condensing technique using medium to small hand instruments.

Trott¹⁶ studied the incidence of ab-

normal gingiva overlying amalgam restorations. He noted that while overhanging amalgam margins predisposed to periodontal disease, clinically good amalgam fillings were capable of producing gingival abnormalities. He questioned whether gingival margins of amalgam restorations should be extended below the free margin of the gingiva in all cases.

Jorgensen et al¹⁷ of Denmark published several reports of tests on silver amalgam. In the first report they described the effect of condensing pressure and grain size of the alloy on delayed expansion of amalgam. The greater the condensing pressure, the less the subsequent expansion of the restoration; but delayed expansion is never completely eliminated. Delayed expansion is also less in a fine-grained amalgam.

In the second report,¹⁸ they showed that increased condensing pressure gives increased crushing strength of amalgam and decreased mercury content. Any reduction in mercury content below 50 per cent results in an increase of crushing strength of from 40 to 75 Kg./cm.²/per cent. Their experiment showed that different amalgams with the same mercury content may have quite different crushing strength; and that different amalgams with the same crushing strength may differ considerably in mercury content.

In the third report,¹⁹ they noted that the crushing strength of silver amalgam is sensitive to temperature variation. Careful polishing of the restoration does not weaken the margins unduly. Silver amalgam will weaken appreciably when heated to 60° C. — a physiological possibility — which, if combined with pressure, can be significant. Prevention of marginal fracture due to such a temperature rise is practicable only by promoting general factors to increase the mechanical resistance of the restoration, such as cavity design and near- 90 degree cavo-surface angles. Amalgam weakened by short heating, regains its original strength within a relatively short time.

Instrumentation procedures while operating from a sitting position were described by Hébert and Kilpatrick²⁰ with emphasis on a Class II and V amalgam and Class III silicate.

Cast Gold.—Traditional three-quarter and full crown preparations were being re-evaluated by some writers with a view to changing or, in some instances, amending existing designs. This is now feasible due to the ease of cutting sound tooth structure and the accuracy of complex one piece impressions.

Jorgensen²¹ suggested an inlay or onlay preparation that is a combination of a slice preparation and traditional design. His Class II inlay preparation eliminates the gingival seat and has the axial wall terminating on the proximal surface. The occlusal outline is conventional but the proximal box is lacking. The advantages he claimed are that it lends itself to high-speed diamonds; its shallow preparation reduces the tendency to cusp fracture; it conserves dentine; the elastic impression is more reliable and less apt to trap air; and retention form, though minimal, appears adequate.

This preparation may be compared to the concave slice preparation advocated by Ambrose.²² This slice preparation employs proximal grooves with occlusal pins where indicated for required retentive form. This permits better treatment of bell-shaped teeth, carrying margins subgingivally without deep invasion of the dentine. Ambrose also outlined an orderly approach to full mouth reconstruction using all of the restorative materials at the dentist's command. He condemned the common reliance on full coverage where many superior and conservative procedures can be used.

Another variation of three-quarter crown design was described by Brass.²³ He recommended that a recessed lingual pin be included in an anterior three-quarter crown preparation to key the insertion of the crown into close lingual adaptation. Particular thought was given the location of margins relative to function and tooth morphology. In this way, a restoration is made that adequately protects the cusps, with strong margins located away from occlusal contacting areas, that are consistent with enamel rod direction.

Brass suggested that quadrant procedures be divided into two steps. By reducing and restoring alternate teeth, the dentist and the technician can use the adjacent teeth as positive guides to occlu-

sal and anatomical reconstruction of the prepared teeth. Temporary cementation with zinc oxide-eugenol for eight to 10 weeks should precede permanent cementation in cases with extensive pulpal irritation.

Rosenstiel²⁴ outlined the mechanics of designing cavity preparations for crowns and inlays in order to achieve maximum marginal fit. A good marginal fit depends largely on the relationship between the path of insertion and the particular tooth surface. A margin adjacent to a cavo-surface that undercuts the path of insertion is a difficult margin for a technician to reproduce. The degree of difficulty depends on the direction of the cavo-surface angle within the plane of this tooth surface. Rosenstiel suggested that MO or MOD preparations in teeth with marked bell form may be improved by altering the path of insertion mesially to obtain a more favourable mesial box and by treating the distal surface with a modified slice. The converse applies where the distal area requires the prime consideration.

Gold Foil.—Mahan and Charbeneau²⁵ tested the mechanical properties of various forms of pure gold restorations. They concluded that gold foil has greater hardness than mat or powdered gold, and is therefore preferable as the veneer of the restoration. The strength of all three forms of pure gold is comparable. It is therefore time saving and, to a degree, less traumatic to the tooth if a gold foil veneer technique is employed. The tensile strength depends on the dentist's ability to construct an entangled gold mass. The weakest plane is always to be found between increments.

Porcelain Inlays.—Kinzer²⁶ described porcelain inlays made in the new high-heat refractory investment. He outlines the cavity preparation and laboratory technique for constructing these inlays without the use of a platinum matrix. The outline form of the cavity should be a continuous curve with no sharp angles. 0.020 Ceramco pins may be used where

needed and an elastic impression taken.

The more accurate fit of fused porcelain margins formed in this manner favourably affects any overlying gingival tissue. The marginal discrepancy of fused porcelain restorations created by the necessary thickness of platinum foil has often been the cause of oedematous marginal gingivitis.

Dental Cements. — The retentive properties of these cements were tested by Oldham, Swartz and Phillips.²⁷ Standardized inlays were cemented in standardized preparations using zinc phosphate, silicate, zinc oxide-eugenol, and Cavitec cements. These were subjected to tensile force and the effect of varnish liners was also noted. These investigators concluded that: (1) Inlays cemented with zinc phosphate cement give the greatest resistance to removal. Kryptex and silico-phosphate cements are almost as good, but silicate cement (New Filling Porcelain) is considerably less. (2) Inlays seated with zinc oxide-eugenol cements require less force to remove them. (3) Varnish-type cavity liners do not alter the retentive properties of any of the cements. (4) Retention of inlays with zinc phosphate cement is not affected by the placing of Cavitec or Dycal in a depression in the floor of the cavity. Copalite varnish may be used as a precautionary measure under crown and bridge cement.

Kapur²⁸ noted that pulp healing is never complete eight weeks following pulp capping of adult teeth using six different procedures. Calcium hydroxide resulted in a connective tissue barrier, while zinc oxide and eugenol produced a mild inflammation. Clinical absence of adverse symptoms, therefore, does not necessarily mean a successful outcome or the formation of a dentine bridge. He differed with earlier investigators who used younger subjects.

The effect of temperature change on the sealing properties of temporary cements was tested by Parris.²⁹ He subjected 10 temporary cements to cycles of temperature change from 60° to 4° C. and, using dye and bacterial solution, noted the effects on the sealing

properties. Bacterial leakage was found with gutta percha, zinc phosphate cements, Ten-Pak, Dentin, and No-Mix. Bacterial leakage was excluded by amalgam, Kalsogen, Kwik-Seal, zinc oxide-eugenol, and Cavit. Both bacterial and dye leakage were excluded only by Cavit and Kwik-Seal.

Self-Curing Acrylic Resin. — Restorations of this material were well described by Fusayama.³⁰ He recommended the use of a brush-on technique after first moistening the cavity walls with monomer. Ten seconds are allowed between increments and tin foil is applied over the surface. Dry walls are necessary for adhesion. He showed why the cavity preparation must have rounded undercut areas made with a ½ round bur and he tests for this positive retention with an explorer. The restoration should be slightly overfilled since the surface exhibits crazing. Excess is trimmed at a subsequent visit. Fusayama recommends a thin mix of zinc phosphate lining cement and inserts the resin before the cement sets. Apparently the effectiveness of the lining cement against penetration of the monomer is reduced with time. The author feels the improved use of acrylic resins makes them superior to silicate restorations—a claim that is debated by many.

Adhesive Restorations. — Roydhouse³¹ of Vancouver reported trials with 'Addent,' a new potentially adhesive filling material made by the Minnesota Mining and Manufacturing Company. This material takes on the colour of the tooth and strengthens the tooth by forming a chemical bond with the tooth structure. The substance is described as an insoluble polymer, derived from liquid vinyl-type comonomers, mixed with a variety of inorganic and glass fillers. The monomeric mixture and the glass filler produce a semitranslucent solid which picks up colour from adjacent tooth tissue. A further report on this material is expected shortly.

INSTRUMENTATION

Some experimentation with a laser beam (light amplification by stimulated emission of radiation) has been reported, though nothing of a practical nature has yet developed. Goldman et al³² made some laser trial impacts of varying power densities on tooth structure under elaborate safety precautions. Kinersly et al³³ suggested that lasing could be used for welding procedures, possibly even in vivo. The bleaching effect of a laser beam has been noted. Vaporization of calculus, however, may prove difficult without harming sound adjacent tooth structure. Application of stain, particularly of a colour complementary to laser light, can enhance the effect. The intense heat spot may be useful in cauterizing or vaporizing oral soft tissue lesions. Tooth structure may be cratered or perforated by this light.

Mohammed³⁴ tested the microbial content of the aerosol mist generated by wet field air turbine operation and found that it is favourably influenced when the patient rinses vigorously with mouthwash prior to treatment.

Golden et al³⁵ demonstrated the relative cleansing effect of the water jet toothbrush and conventional toothbrush. Twenty-five dental students, after chewing radio-iodinated peanut butter on Graham crackers, expectorated the meal, cleansed their teeth with the above instruments, and had the mouth residue measured. After conventional brushing 12.1 per cent of the test meal remained. After using the water brush only 6.3 per cent remained.

PERIODONTICS

Current concepts regarding the treatment of hypersensitive surfaces of teeth have been reviewed by Gottsegen,³⁶ Smith and Ash.³⁷ They found no agent or combination of agents uniformly effective in all cases. Blamed as the cause of this hypersensitivity was the exposure of dentine through the removal of cementum by toothbrushing, by consumption of certain foods such as citrus fruits or sugar

solutions, and by periodontal or operative instrumentation. Gottsegen³⁶ prefers to treat this condition first by removal of the dental plaque through effective home care and control of the offending foods. Failing this, or in conjunction with the above therapy, he uses any of the agents listed in the following chronological order (though not necessarily the order of preference):

1. Coagulants: Formalin, phenol, or 25 per cent silver nitrate.

2. Fluorides: An 8 per cent solution of stannous fluoride is effective. Acidulated sodium fluoride-phosphate, though it is too new to be evaluated for this purpose, is also advocated.

3. Desensitizing dentifrices (Thermodent, containing formalin; Sensodyne, containing strontium chloride): these are of doubtful merit. Thermodent carries the added hazard of sensitizing the patient. Ash³⁷ has shown that Thermodent is no better than the placebo used in his tests.

4. Iontophoresis using direct current: this induces inorganic ions, such as fluoride or chloride to penetrate from the electrolyte into the dentinal tubules. Lefkowitz has shown that the current, and not the ionization of the electrolyte, stimulates the formation of secondary tooth structure.

5. Corticosteroids: Bowers and Elliott³⁸ have demonstrated the usefulness of prednisolone in the treatment of sensitive dentine. The following causes of sensitivity are listed in the order of their successful treatment with prednisolone: cuspal or incisal fracture, occlusal adjustment, root exposure following periodontal treatment, recession with abrasion and erosion.

The relative efficiency of electric toothbrushes and manual toothbrushes was effectively described by Ash.³⁹ On the basis of published reports and of his own studies, he believes there is no advantage for the average patient between a General Electric, Broxodent, or manual brush. One individual, however, may use one type of brush or one method of brushing more effectively than another. With children, such factors as training, interest, desire, dexterity, and novelty are inter-related and make impossible an accurate

conclusion regarding the relative effectiveness of electric and hand brushing. Ash concluded, therefore, that manual, General Electric and Broxodent brushes are equally effective and that electric toothbrushes cause no more abrasion or trauma than manual brushes when properly used.

Pulp-Periodontal Relationship. — The relationship of periodontal disease and pulpal disease continues to attract attention. Simring and Goldberg⁴⁰ wrote of the need to combine endodontic therapy with periodontic treatment in advanced cases that resist expert periodontic therapy. He termed this reverse infection of the periodontium from the pulp (via lateral canals) and from the apical area as "retrograde periodontitis." Indications for prescribing endodontic therapy as part of periodontic treatment were noted, and readers were cautioned to employ endodontic therapy for this purpose only for teeth in critical condition.

Mazur and Massler⁴¹ conducted an experiment to determine the effect of periodontal disease on the pulp. They rated the severity of periodontal disease by the amount of bone loss seen in the radiographs. Based on this, their results showed no relationship between the severity of periodontal disease and changes in the pulp. Moreover, different teeth in the same patient showing a wide range of periodontal involvement had pulps that were histologically similar. They suggested that the systemic condition of the patient may have a greater influence on the state of the pulp than does the periodontium.

Baer et al⁴² reported on the presence of periodontal disease in germ-free mice. These investigators noted that it occurred with the same incidence and severity as in the control animals. It was characterized by apical migration of the epithelial attachment and true periodontal pocket formation. Micro-organisms, according to Baer, are not the primary aetiological agents in this form of periodontal disease. He believes that a metabolic disturbance in the cementum is the prime cause.

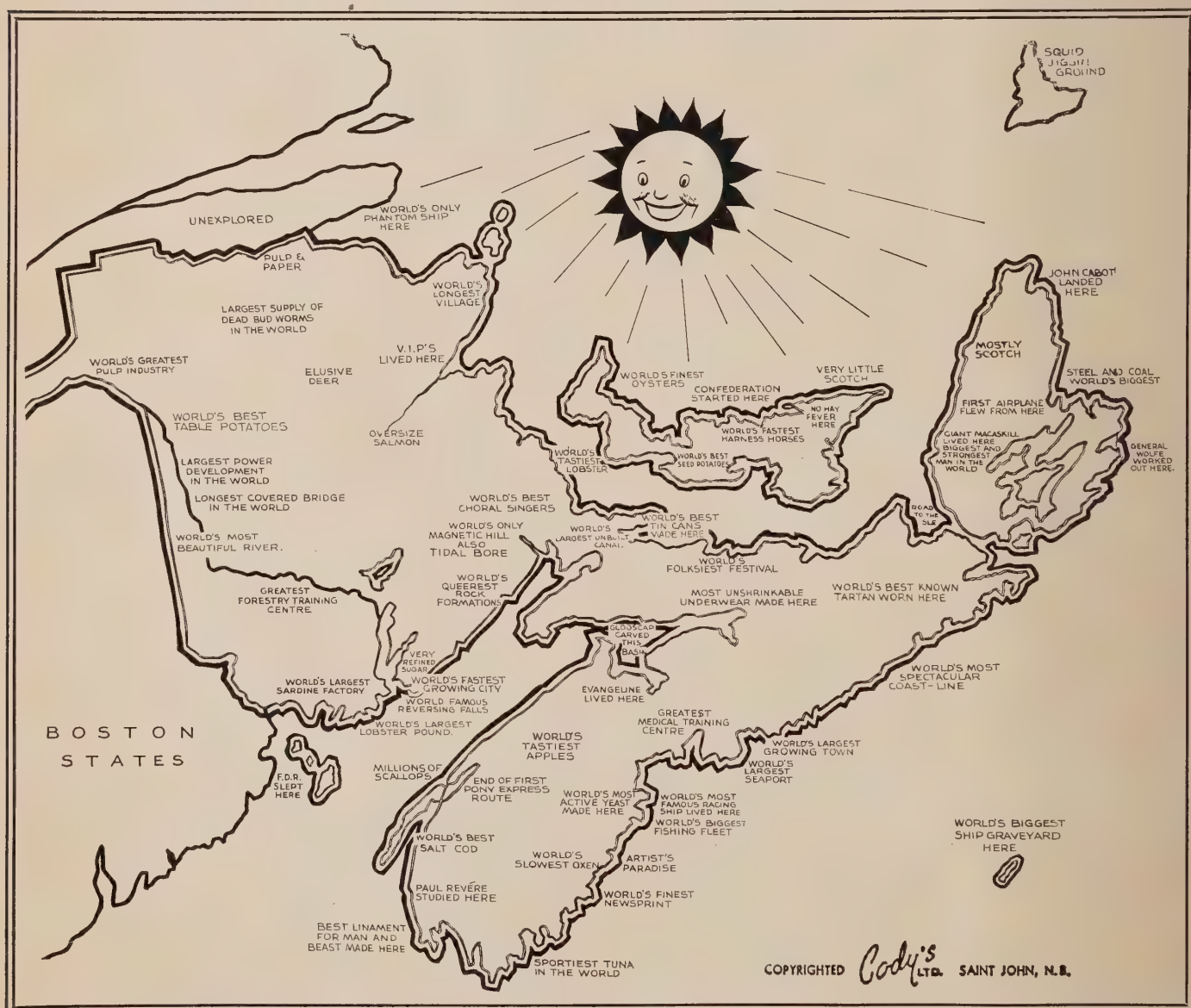
Presented at the first meeting of the Canadian Academy of Restorative Dentistry, Montreal, May 29, 1965.

1. Phillips, R. W. Report of the Committee on Scientific Investigation of the American Academy of Restorative Dentistry. *J. Pros. Den.* 14:554, 1964.
2. Gilmore, H. W. Pulpal considerations for operative dentistry. *J. Pros. Den.* 14:752, 1964.
3. Langeland, K. and Langeland, L. K. Pulp reactions to crown preparation, impression, temporary crown fixation and permanent cementation. *J. Pros. Den.* 15:129, 1965.
4. Sorenson, F. M., Cantwell, K. R. and Aplin, A. W. Thermogenics in cavity preparation using air turbine handpieces: the relationship of heat transferred to rate of tooth structure removal. *J. Pros. Den.* 14:524, 1964.
5. Svare, C. W. and Meyer, M. W. Available acidity of silicate cement. *J. A. D. A.* 70:354, 1965.
6. Braden, M. Heat conduction in teeth and the effect of lining materials. *J. D. Res.* 43:315, 1964.
7. Dachi, S. F., Ross, Alan and Stigers, R. W. Effects of prednisolone on the thermal sensitivity and pulpal reactions of amalgam-restored teeth. *J. A. D. A.* 69:565, 1964.
8. Ehrmann, E. H. The effect of triamcinolone with tetracycline on the dental pulp and apical periodontium. *J. Pros. Den.* 15:144, 1965.
9. Mager, M. E. Treatment of pulpitis with synthetic steroids combined with antibiotics. A review and results of a pilot test. *D. Practitioner* 14:505, 1964.
10. Olsen, P. Clinical experience with a corticoid-antibiotic preparation in conservative treatment of the pulp. *J. Canad. D. A.* 30:771, 1964.
11. Seltzer, S., Bender, I. B. and Nazimov, H. Differential diagnosis of pulp conditions. *Oral Surg.* 19:383, 1965.
12. Kasloff, Zack. Review of recent developments in materials used for operative dentistry. *J. Canad. D. A.* 30:292, 1964.
13. Charbeneau, G. T. Appraisal of finishing and polishing procedures for dental amalgam. *J. Michigan D. A.* 46:135, 1964.
14. Naujoks, R., Hauke, B. and Rust, H. Mercury penetration of dentin. *D. Abs.* 9:480, 1964.
15. Gibb, G. H. Methods for achieving improved amalgam restorations. *J. Canad. D. A.* 30:413, 1964.
16. Trott, J. R. and Sherkat, Afsar. Effect of Class II amalgam restorations on health of the gingiva: a clinical survey. *J. Canad. D. A.* 30:766, 1964.
17. Holst, Karen and Jorgensen, K. D. The influence of condensation pressure and other factors on delayed expansion of silver amalgam. *Acta Odont. Scandinavica* 22:311, 1964.
18. Jorgensen, K. D. and Neilsen, M. R. The influence of the condensation pressure upon crushing strength and mercury content of amalgam. *Acta Odont. Scandinavica* 22:539, 1964.
19. Jorgensen, K. D., Otani, Hiroshi and Kanai, Shozo. The influence of temperature on the crushing strength of dental amalgams. *Acta Odont. Scandinavica* 22:547, 1964.
20. Hébert, Marcel and Kilpatrick, H. C. Two aspects of work simplification in operative dentistry. *J. Canad. D. A.* 30:421, 1964.
21. Jorgensen, K. D. New cavity preparation for cast inlays. *J. Pros. Den.* 14:520, 1964.
22. Ambrose, E. R. Hazards of complete mouth reconstruction. *J. Canad. D.A.* 30:281, 1964.
23. Brass, G. A. Common problems arising from new developments in operative dentistry. *J. Canad. D. A.* 30:297, 1964.
24. Rosenstiel, Edwin. Marginal fit of inlays and crowns. *Brit. D. J.* 117:432, 1964.
25. Mahan, Jeffries and Charbeneau, G. T. A study of certain mechanical properties and the density of condensed specimens made from various forms of pure gold. *J. Am. Acad. Gold Foil Operators* 8:6, 1965.
26. Kinzer, R. L. Porcelain inlays fabricated with a new high-heat refractory investment. *J. Pros. Den.* 14:980, 1964.
27. Oldham, D. F., Swartz, Marjorie L. and Phillips, R. W. Retentive properties of dental cements. *J. Pros. Den.* 14:760, 1964.

28. Kapur, K. K., Shapiro, Stewart and Shklar, Gerald. Response of human dental pulp to various physical and chemical agents; a correlated clinical and histopathologic study. *Oral Surg., Oral Med. & Oral Path.* 17:640, 1964.
29. Parris, Leonard, Kapsimalis, Peter, Cobe, H. H. and Evans, Richard. Effect of temperature change on the sealing properties of temporary filling materials. *Oral Surg., Oral Med. & Oral Path.* 17:771, 1964.
30. Fusayama, Takao, Hosoda, Hiroyasu and Iwamoto, Tsugio. Improved self-curing acrylic restoration and comparison with silicate cement restorations. *J. Pros. Den.* 14:537, 1964.
31. Roydhouse, R. H. Restorative materials: a description of a new material. Synopsis of paper presented at the Conference on Teaching of Dental Materials, Chicago, November, 1964, Faculty of Dentistry, University of British Columbia, 1964. Processed.
32. Goldman, Leon, Gray, J. A., Goldman, John, Goldman, Bernard and Meyer, Robert. Effect of laser beam impacts on teeth. *J.A.D.A.* 70:601, 1965.
33. Kinersly, T., Jarabak, J. P., Phatak, N. M. and DeMent, Jack. Laser effects on tissue and materials related to dentistry. *J.A.D.A.* 70:593, 1965.
34. Mohammed, C. I., Manhold, J. H. and Manhold, Beverly S. Efficacy of preoperative oral rinsing to reduce air contamination during use of air turbine handpiece. *J.A.D.A.* 69:715, 1964.
35. Golden, I. B., Collins, E. M. and Deeb, P. H. A comparative study of the clearance of radio-iodinated (I131) peanut butter and crackers from the mouth by two methods of tooth-brushing. *J. Periodont.* 35:495, 1964.
36. Gottsegen, Robert. Current concepts. *Periodont. Abs.* 8:12, March 1965.
37. Smith, B. A. and Ash, M. M., Jr. Study of a desensitizing dentifrice and cervical hypersensitivity. *J. Periodont.* 35:222, 1964.
38. Bowers, G. M. and Elliott, J. R. Topical use of prednisolone in periodontics. *J. Periodont.* 35:486, 1964.
39. Ash, M. M., Jr. Review of the problems and results of studies on manual and power tooth-brushes. *J. Periodont.* 35:202, 1964.
40. Simring, Marvin and Goldberg, Maurice. Pulpal pocket approach: retrograde periodontitis. *J. Periodont.* 35:22, 1964.
41. Mazur, Boleslaw and Massler, Maury. Influence of periodontal disease on the dental pulp. *Oral Surg., Oral Med. & Oral Path.* 17:592, 1964.
42. Baer, P. N., Newton, W. L. and White, C. L. Studies on periodontal disease in the mouse. VI. The older germ-free mouse and its conventional control. *J. Periodont.* 35:388, 1964.

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Safety and efficiency of methohexital in dental office anaesthesia

R. E. Simpson,* MD and P. L. Rondeau, DDS, Vancouver, British Columbia

Methohexital sodium is an ultrashort acting barbiturate which may be used in intravenous anaesthesia. Recovery from the drug is rapid, permitting the patient to leave the dental office without confusion or inability to cope with his environment. Postanaesthetic depression, nausea, dizziness, inebriation and belligerence are minimal.

Le méthohexital de sodium est un barbiturique à action très brève. Il peut être administré par voie intraveineuse pour produire l'anesthésie générale. Son action étant rapide, le patient peut quitter le bureau sans difficulté, tout à fait ressaisi et l'esprit clair. La dépression, les nausées, les étourdissements, l'ivresse et la belligérance post-anesthésiques sont minimes.

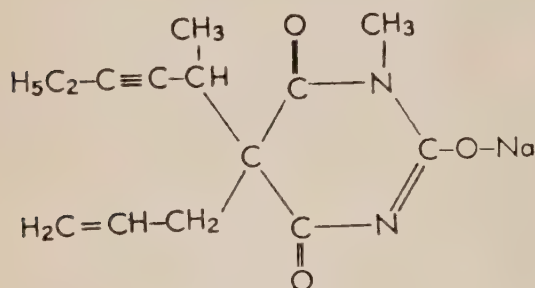
In the past four years we have used methohexital sodium as an intravenous barbiturate anaesthetic agent in over 4,000 patients. When used in dental office anaesthesia we believe that methohexital is a marked improvement over the thio-barbiturates. The reasons are simple: while it permits an equally smooth and pleasant induction of anaesthesia, unlike the thio-barbiturates, its effects are virtually noncumulative, so that it leaves minimal disorientation and postoperative inebriation in its wake. Shortly after recovery of consciousness, patients co-ordinate well and are usually able to leave the office within 30 minutes. This lack of after-effects is particularly dramatic in younger patients.

The prompt clear-headed recovery provided by methohexital greatly facilitates the handling of patients and increases the safety and efficiency of dental office anaesthesia.

PHARMACOLOGY

Methohexital sodium (Brietal, Brevital) is an ultrashort acting barbiturate which contains an oxygen radical instead of a sulphur atom in its chemical formula [sodium α -dl-1-methyl-5-(1-methyl-2-pentynyl)-5-allyl-barbiturate]. There are two asymmetric carbon atoms which give rise to four stereo-isomers of which the

alphadextro-levo racemic mixture has been found to provide the most desirable agent.



Methohexital in solution is colourless, odourless, and stable at room temperature for many weeks without apparent loss of potency. The pH of the sodium salt is approximately 11. The sodium salt should not be mixed with acid solutions which may cause precipitation. Methohexital is at least 2.5 times more potent than thiopental sodium in humans. It is generally used clinically in a 1 per cent solution. It is deactivated promptly in the body and is not stored in the tissues. Stoelting,¹ in animal studies, reported methohexital to have three times the potency, one-half the duration of effect and considerably less cumulative effect on the subject when compared to methitural (Neraval) or thiopental. Wyant,^{2,3} Dobkin,⁴ Redish,⁵ Recant,⁶ Hubbell⁷ and Lyon,⁸ to name a few, all have reported comparable results in clinical studies using methohexital for oral surgical procedures. Methohexital is less irritating and less painful to the subcutaneous tissues when intravenous leakage occurs. The drug has also been administered intramuscularly⁹ and per rectum.¹⁰

ANAESTHETIC TECHNIQUES

Our aim is to provide optimum conditions for out-patient anaesthesia. Oxygen and nitrous oxide are piped into the surgery and a strong source of suction is available. Operations are performed on an operating table capable of tilting, and patients are conducted to the recovery area on a stretcher. Constant supervision is maintained until recovery of consciousness.

Prior to his visit to the office, the patient is given instructions to have nothing to eat or drink for five hours before his anaesthesia, and these instructions are rigidly enforced. On arrival, a brief medical history is taken and a brief physical examination made. Blood pressure is monitored on those patients where it is considered necessary, particularly in the older age group. Patients with more than minor physical disabilities are referred to hospital, as are those where the operation is estimated to exceed one hour's duration.

Unless a patient is unusually nervous, he receives no premedication up to the time of operation. Atropine sulphate is given intravenously with methohexital when a procedure is expected to take more than a few minutes. In brief operations, the patient receives no premedication whatever.

Our patients are arbitrarily divided into three groups, based on a pre-operative estimate of the difficulty of surgery and the time required to complete the operation:

1. Short operations.—(Procedures taking less than five minutes.) In this group, a single shot of methohexital suffices for the entire procedure—usually the extraction of one or two teeth. The dose of methohexital may vary from 30-40 mg. of a 1 per cent solution in a small child, to somewhat over 200 mg. in a 240 lb. man. The average dose for this type of case is 70-80 mg. The patient receives nothing but methohexital and breathes room air.

2. Cases of moderate duration.—(Procedures expected to last less than 15 minutes and where the operation is relatively simple.) Here, after an average initial dose of 150 mg. of 1 per cent methohexital with atropine 1/100 gr. is injected fairly rapidly, a nasopharyngeal tube is passed and anaesthesia is maintained with nitrous oxide, oxygen, and halothane. The operation begins immediately. Respiration is spontaneous and the concentration of halothane is not allowed to exceed 3 per cent. We use a Boyle type anaesthetic machine with a Fluotec vaporizer. A semi-closed technique is commonly employed with a flow of 2 litres of nitrous oxide and 2 litres of oxygen.

3. Cases of longer duration. — (Procedures lasting up to an hour.) A similar induction is carried out, followed by 30-40 mg. of succinylcholine intravenously. After hyperventilation with oxygen, a nasotracheal or orotracheal tube is passed. Ventilation is controlled only as long as necessary and the patient then breathes spontaneously the nitrous oxide, oxygen, halothane mixture described above.

Consciousness returns rapidly at the end of the operation. Nausea and vomiting are rare, as are inebriation and restlessness. The great majority of patients are calm, co-operative and well oriented in a remarkably short period of time.

CLINICAL PROBLEMS

We list these observations according to the sequence of their occurrence, beginning with the initial intravenous injection of methohexital:

1. Vein irritation and arm pain sometimes extending to the shoulder occurred in less than 1 per cent of patients. This symptom may be related to the speed of injection, for a slower rate (1 ml. per second) seemed to eliminate the problem to a great extent. To the best of our knowledge, not one case of thrombophlebitis or venous thrombosis occurred, despite occasional inadvertent interstitial injection.

2. Involuntary muscle movements of the head, face, arms and legs were present on induction in about 10 per cent of patients. These are particularly noticeable when small doses are used, and reflex reactions to painful stimuli may still be present.

3. Hiccoughing occurred in less than 2 per cent of patients and was not a problem in any single case.

4. Laryngospasm occurred in about 4 per cent of cases. Although the degree of spasm occasionally presented a minor problem, laryngospasm was never a factor of major concern.

5. Coughing and/or gagging were observed in less than 1 per cent of patients—usually smokers. This problem could not be prevented or predicted, nor was it dis-

turbing to the patient on regaining consciousness.

6. Nausea and/or vomiting were extremely rare after any short methohexital anaesthesia. Nausea was an occasional problem in prolonged anaesthesia where inhalants were used and the analgesic meperidine (Demerol) was administered intramuscularly. It was frequently controlled by simply adding prochlorperazine (Stemetil) 2.5-5 mg. to the meperidine prior to injection.

7. Because the effects of methohexital and halothane wear off quickly and as these drugs have little, if any, intrinsic analgesic properties, postoperative pain was encountered in a high percentage of patients. In all cases of prolonged or traumatic surgery, or where abscessed or mandibular teeth are to be extracted, some form of analgesic should be administered and balanced in one of the following ways to suit each patient and each operation:

(a) Premedicate with oral codeine or a comparable drug;

(b) Block the related sensory nerve with 2 per cent lidocaine before the patient awakens;

(c) Inject meperidine, or a comparable drug intramuscularly or intravenously, depending upon the length of operation and the speed and depth of the analgesia required.

8. Restlessness was a feature of recovery in 1 per cent of patients—usually teenagers. Stretching, turning, thrashing and scratching of the head sometimes occurred, but were usually of brief duration. These reactions are probably due to the immaturity of these patients and their sensitivity to depressant drugs. Certainly the thio-barbiturates, with their more prolonged effects, produce a far greater postoperative problem in the young. In fact, methohexital was used on patients as young as six years of age, and in most of these children recovery could only be described as excellent. We have felt that the thio-barbiturates are contraindicated at this age level for an out-patient type of practice.

9. Anxiety and emotional distress occurred in about 4 per cent of patients, usually following very light anaesthesia in a young or very nervous person. We

have learned through experience that this problem is largely corrected by the use of larger doses of methohexital. Dosage is assessed by considering a number of factors, such as the patient's age, sex, size, occupation, drug and alcohol habits, state of apprehension, the pre-existing pain and infection in the area of the operation, and the expected length of the operation.

10. Postoperative crying was observed in approximately 10 per cent of patients of whom 90 per cent were female. It can be stated that the more apprehensive and tense a patient appeared, the more likely she would be upset after anaesthesia. The great majority of these patients, having experienced a kind of emotional release, were happy and pleased with the whole procedure once they had fully recovered.

CLINICAL ADVANTAGES

When compared with thiopental—the barbiturate with which we have had the most previous experience—we believe that methohexital offers the following advantages:

1. Methohexital is tasteless — and odourless to the patient when administered intravenously.

2. Methohexital is more stable in solution, providing greater economy because of its longer shelf life.

3. There is considerably less confusion, inebriation and disorientation following recovery of consciousness.

4. Postoperative nausea and vomiting are almost non-existent.

5. Very young patients are managed easily.

6. Recovery time is greatly reduced,

leading to greater efficiency and safety in a busy office practice.

SUMMARY

Methohexital sodium is an ultrashort acting barbiturate which may be used in intravenous anaesthesia. Recovery from the drug is rapid, permitting the patient to leave the dental office without confusion or inability to cope with his environment. Postanaesthetic depression, nausea, dizziness, drunkenness and belligerence are minimal. Methohexital must be considered an agent of significant value in dental office anaesthesia.

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1. Stoelting, V. K. The use of a new intravenous oxygen barbiturate 25398 for intravenous anesthesia (a preliminary report). *Anesthesia and Analgesia* 36:49 May-June 1957.
2. Wyant, G. M. and Chang, C. A. Sodium methohexital: a clinical study. *Can. Anaes. Soc. J.* 6:40, 1959.
3. Wyant, G. M. and Barr, J. S. Further comparative studies of sodium methohexital. *Can. Anaes. Soc. J.* 7:127, 1960.
4. Dobkin, A. B. and Wyant, G. M. The physiological effects of intravenous anaesthesia on man. *Can. Anaes. Soc. J.* 4:295, 1957.
5. Redish, C. H., Vore, R. E., Chernish, S. M. and Gruber, C. M., Jr. Comparison of thiopental sodium, methitural sodium and methohexital sodium in oral surgery patients. *Oral Surg., Oral Med. & Oral Path.* 11:603, 1958.
6. Recant, B. S. Methohexital sodium. Clinical study of a new intravenous barbiturate anesthetic. *Oral Surg., Oral Med. & Oral Path.* 13:1330, 1960.
7. Hubbell, A. O. Methohexital sodium anesthesia for oral surgery. *J. Oral Surg., Anes. & Hosp. D. Serv.* 18:295, 1960.
8. Lyon, L. Z. Methohexital sodium: a clinical appraisal in oral surgery. *J. Oral Surg., Anes. & Hosp. D. Serv.* 19:475, 1961.
9. Dryden, G. E. and Mosher, W. Methohexital intramuscular for basal sedation. *Applied Therapeutics* 5:521, 1963.
10. Schumacher, Marilyn J. Brevital sodium for basal anesthesia in pediatrics. *J. Am. A. Nurse Anesthetists* 30:283, 1962.

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Reducing the incidence of dry socket: a clinical appraisal

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Gelatin sponge soaked in a solution of tetracycline and normal saline drastically reduced the incidence of postoperative dry socket when placed in the extraction sockets of 153 patients who underwent removal of impacted mandibular third molars. The degree of bone relief incidental to the operation was unrelated to the incidence of dry socket.

A la suite de l'extraction de troisièmes molaires du bas incluses, faite sur 153 patients différents, on a introduit dans l'alvéole des éponges de gélatine résorbable imbibées d'une solution de tétracycline et de sérum physiologique. Ceci a permis de réduire de façon très marquée l'incidence d'alvéolite post-opératoire. La quantité d'os enlevée au cours de l'opération n'a pas semblé être en rapport avec l'incidence d'alvéolite.

socket. Although other clinical problems beset them, it is unlikely that there is anything more disturbing to the practitioner or more upsetting to the patient than to experience the occurrence of this painful episode. Some oral surgeons claim that this complication does not occur in their practice. Their success at eliminating this plaguing problem is to be admired and, were it known, their secret should be emulated. The following report describes a gross clinical evaluation of an attempt to prevent this undesirable dental extraction sequel as well as a short review of some of the pertinent literature on the subject.

Sophisticated nomenclature of varied description has been proffered over the years and serious attempts have been made within the profession to eliminate this colloquial and unscientific designation—dry socket. Nonetheless, it lives on and its connotation is unmistakable among dentists and much of the laity who, as patients, have experienced it.

REVIEW

Dorland's Medical Dictionary¹ defines dry socket as "a condition in which the

The nemesis of those dentists who spend most of their working hours extracting teeth might well be the proverbial dry

septum of an extracted tooth shows exposed bone, with no expected granulation tissue or pus, associated with severe neuralgia and a characteristic foul odour."

Much more descriptive and clinically accurate is a description which Thoma² gives of this affliction:

"Alveolar osteitis is a condition in which the blood clot disintegrates. At first the clot has a dirty grey appearance, and then it falls out, leaving a bony socket bare of granulation tissue. Suppuration is absent, but a foul odour is present, and severe neuralgic pain persists for days. The condition is also known as 'dry socket.' The symptoms generally set in on the second or third day after the extraction of the tooth, and last from 10 to 40 days. The diagnosis is confirmed by passing a small curette into the extraction wound; in dry socket, bare bone is encountered which is extremely sensitive.

"The socket is not always open; it may contain necrotic granulation tissue not as yet expelled, or the orifice may be covered by a flap of tissue so that detection is difficult. On account of the extreme radiating pain of prolonged duration, this complication is without doubt one of the most distressing postoperative sequelae to extraction. It occurs in spite of the most careful aseptic procedure, and regardless of the ability and judgement of the surgeon."

These latter comments are comforting to those dentists who have not yet been able to overcome this malady in a preventive sense. The patient is sometimes prone to suspect that all was not right with the dentist's method of handling the extraction when he develops this condition. It is reassuring to know that someone of Dr. Thoma's experience, reputation and skill has similar problems in his practice.

The incidence of dry socket as reported in the literature varies depending on whether the site of extraction is limited to a specific area within one jaw or whether all extractions from any site are considered. Krogh³ reported that after the removal of 6,403 teeth (4,403 were simple extractions, and 2,000 — including 353 impacted teeth—were removed surgically) 138 cases of dry socket or 2.17 per cent resulted despite excellent postoperative care. Seven were in the upper jaw and 131 in the bicuspid and molar sections of the lower jaw. Erickson, Waite and Wilkison⁴ did a clinical evaluation using the loss of clot as their criterion for

the occurrence of dry socket since, in their opinion, "its presence is almost invariably connected with the other symptoms of localized osteitis, such as odour, bone exposure, pain, swelling and lymphadenitis." Their study involved 50 men and 46 women, mostly of college age, with only third molars being extracted. "The amount of clot loss was determined by the amount of firm, healthy clot remaining in the socket (in other words, that which remained after irrigation and firm wiping-out of the debris with a cotton pellet) as compared to the approximate size of the original defect." On the basis of the foregoing criteria they recorded an incidence of dry socket in the order of 68.42 per cent (that is over one half the clot lost). Since this particular method of identifying alveolar osteitis is not the usual one it is somewhat difficult to equate this figure to others appearing in the literature.

Archer⁵ reported a frequency of about 1 per cent following 24,575 tooth extractions. Lehner⁶ reported a frequency of 2.3 per cent on the basis of 100 cases of the condition resulting from the extraction of 4,310 teeth. Hansen⁷ found an overall incidence of 3.2 per cent in his study involving varied kinds of extractions from all locations. Gustafson and Wallenius⁸ reported an incidence of dry socket of 1.2 per cent following extraction of 5,679 teeth. Adkisson and Harris⁹ noted a frequency of 2.1 per cent. Millhon et al¹⁰ at the Mayo Clinic found 51 cases of dry socket (16.8 per cent) following the removal of 304 impacted lower third molars. Quinley et al¹¹ of Rochester, Minnesota, performed a study somewhat similar to that reported here. They removed 522 impacted mandibular third molars from 367 patients under general (341) and local (26) anaesthesia. They used soluble 50 mg. tetracycline hydrochloride tablets and inserted one or more in the wound before closing in all but 12 sockets. The incidence of dry socket when one or more tablets of tetracycline were used was 0.78 per cent. When nothing was used, the incidence was 33.5 per cent.

The cause of alveolar osteitis remains unclear. Alling and Kerr,¹² who did some good original animal research on

the subject of aetiology, using 25 Rhesus monkeys, felt that trauma played a major role. They extracted the right mandibular first molar with forceps and the left mandibular first molar with straight elevators. The socket walls of the left first molar were thoroughly burnished with a metallic instrument. No dressing was used in the sockets, and no attempt was made to control artificially the haemorrhage from the sockets. Each animal provided its own control inasmuch as the traumatized socket and the simple extraction socket were submitted to the same environmental, systemic and local factors. The sockets were examined clinically and histopathologically. The monkeys were sacrificed at intervals. Alling and Kerr conclude, "It is our interpretation, however, that it is the absence of periodontal membrane rather than the presence of inflammation which is responsible for the dry socket."

Erickson et al⁴ took an extensive history from each of their patients prior to implementing their surgery. This included information regarding previous inflammation, pain or infection at the surgical site. They recorded the length and severity of the operation. They noted whether the patient was calm or apprehensive during the operation. The type and amount of local anaesthetic were held constant for all extractions. The patients were seen 24 hours following the operation and then on subsequent days. No correlation was found "between the amount of clot loss and the amount of apprehension, previous or existing infection of the surgical site, length of operation, or the carrying out of recommended postoperative instructions."

Harang¹³ concluded that a burnishing type of trauma as incurred by undue manipulation of a tooth during extraction predisposed to a delay in repair. On the other hand, Archer⁵ indicated that trauma did not play as important a role as had been described in past writing, although 56 per cent of the patients with painful sockets in his series had a history of trauma during extraction. Krogh³ found a definite correlation between the mechanical difficulty of tooth removal and dry socket incidence.

The invasion of the alveolar process

by micro-organisms after dental extractions has been indicted as one of the major causes of delay in repair. For example, Bernier¹⁴ states: "The dry socket is the clinical socket complicated by infection." Bear,¹⁵ writing about the nature of the lesion caused by micro-organisms commonly met during oral surgery, suggests "the one encountered most often in general practice is wound contamination, as in a 'dry socket'." He avers that the condition "... is not uncommon when the teeth have been removed in the presence of oral filth and chronic infection." Archer⁵ states that 80 per cent of his series of painful sockets had either diplostreptococci or streptococci. He implied that these organisms were the most common aetiological agents of postextraction pain. On the other hand, Grandstaff¹⁶ reported that bacteriological findings in 20 instances of normally healing sockets and in 20 instances of delayed or abnormally healing sockets were not significantly different. Alling¹⁷ mentions the various organisms that have been cultured from sockets with postextraction osteomyelitic syndrome (his term for a dry socket) such as fusiform bacilli, spirochaetes, diplostreptococci and streptococci and asserts that "the interacting factors of devitalized periodontal membrane remnants and the lack of blood supply to the coagulated blood provides a nutritional pabulum for the support of bacterial growth." In a personal communication Strean¹⁸ observes that he has given this problem careful consideration over a period of many years and he states categorically: "There is no doubt that this pathological condition is the result of infection which breaks down the blood clot."

It appears generally accepted that dry socket occurs most commonly in the lower molar region. In his large series mentioned previously, Krogh³ found that 95 per cent of his dry sockets occurred in the lower bicuspid and molar area. Lehner⁶ determined that "... the molar region in the mandible was most commonly affected (77 per cent of the cases)." Erickson et al⁴ agreed that the lower third molar area is the most frequent site of localized osteitis. Hansen⁷ found that 64 per cent of dry sockets in

his study involved the mandibular molar area. His series represented 1,079 extractions about equally divided between maxilla and mandible. On the basis of their study Millhon et al¹⁰ concluded that dry socket is more likely to follow removal of teeth from the lower molar area than from other regions. Waite¹⁹ states that the lower third molar area was first in order of frequency of localized osteitis.

Prevention is always the method of choice in dealing with all forms of disease. Thus, one is moved to attempt an evaluation of a clinical nature in order to determine if, indeed, there is a safe, simple and effective method of preventing this bothersome postextraction complication. The following study is only a crude clinical evaluation of one approach to prevention of dry socket. The local use of antibiotics in the socket was chosen as the format for this particular study simply because there has been some local popularity for this custom and the literature suggests that there may be some merit in it.

METHOD

The investigation embraced 361 impacted third molars which were divided into seven different series. The entire study spanned a period of four years and was carried out in the writer's own office during the regular private practice of oral surgery. The following criteria prevailed throughout the study. Mepivacaine hydrochloride 2 per cent with levonordefrin (Neo Cobefrin) 1:20,000 as a vasoconstrictor was utilized as local anaesthetic. Only mandibular third molars were considered. These were all clinically impacted teeth and all required at least some degree of bone relief for their removal. They ran the gamut from relatively simple to somewhat complicated procedures. The antibiotic was crushed from its tablet form into a powder and then mixed with sterile saline in a sterile dappen dish. A commercial square of gelatin sponge was placed in the solution and teased with cotton pliers so as to absorb as much of the solution as possible. The final product was a soggy, limp

mass of material which was placed in the bony defect just after final debridement and before closure with sutures. Irrespective of the measurement of antibiotic originally placed in the dappen dish, the amount which finally entered the wound was necessarily variable and indeterminate.

Patients for whom it was necessary to use antibiotics for any other reason, either pre-operatively or postoperatively, were disqualified from the study. Furthermore, no other adjuncts such as corticosteroids or enzymes were prescribed or utilized in any case included in this review.

The first series of 50 patients received gelatin sponge combined with neomycin 50 mg. Continuing concurrently with this series was another series of 52 cases in which only a plain, unannointed square of gelatin sponge was placed in the wound. The patients for each of these series were selected on a simple, alternating basis with no regard whatever for the difficulty of the operation. In other words, the two lists were kept in tandem and an attempt was made to keep them roughly parallel as far as the total number of cases at any given time was concerned.

The third group of patients (51) received gelatin sponge and 100 mg. of tetracycline hydrochloride. Continuing concomitantly with this group was a fourth series in which nothing was placed in the wound, depending only on natural processes for a control. This latter series consisted of 48 cases.

In an effort to obtain an even 100 cases using tetracycline 100 mg. and gelatin sponge, a fifth series of 52 such cases was run.

Because bacitracin is reputed to be a good antibiotic for topical use in dentistry a sixth series was done using this latter antibiotic in the amount of 50 mg. along with the gelatin sponge. Fifty-eight patients were included in this series.

Finally, in an endeavour to determine whether the gross quantity of antibiotic utilized made any significant difference to the results, tetracycline in the amount of 50 mg. was used along with gelatin sponge in a seventh series of 50 cases.

TABLE 1 Incidence of dry socket using various socket dressings.

Series	Socket dressing	No. of patients	No. cases of dry socket	Incidence % of dry socket
1	Neomycin 50 mg. + gelatin sponge	50	8	16
2	Gelatin sponge only	52	17	32.7
3	Tetracycline 100 mg. + gelatin sponge	51	2	3.9
4	Nothing placed in the wound	48	18	37.5
5	Tetracycline 100 mg. + gelatin sponge	52	2	3.8
6	Bacitracin 50 mg. + gelatin sponge	58	10	17.2
7	Tetracycline 50 mg. + gelatin sponge	50	0	0

As a rule the patient was seen on the fifth postoperative day for removal of sutures. Exceptions to this included those individuals who contacted the office earlier than that because of what they considered an inordinate amount of pain. My patients are routinely given verbal and written postoperative instructions which include the admonition that they should contact our office should they experience a disproportionate amount of pain, especially if its onset is delayed by two or three days and/or not controlled with the prescribed analgesics. None of the patients was apprised that he was involved in a study of any kind so that anticipation would not be operative as a prejudicial influence.

The criterion for making the diagnosis of 'dry socket' was pain. This pain was generally but not absolutely characterized by delayed onset, usually 48 to 72 hours postoperatively, and preceded by a relatively mild period of the customary postimpaction discomfort. Radiation of the pain up to the ear region or down the neck was common but not invariable. The clinical appearance of the wound was not used as a criterion for designating it as an alveolar osteitis; I consider this as unreliable for diagnostic purposes. Once the clinical diagnosis of alveolar osteitis

was made, the wound was treated locally in the usual manner.

RESULTS

The results are tabulated in Table 1. In series 1, using neomycin and gelatin sponge, there were eight cases (16 per cent) of dry socket. In the second series, utilizing gelatin sponge only, there were 17 cases (32.7 per cent) of dry socket. The third series, in which 100 mg. of tetracycline was used along with the gelatin sponge, resulted in two cases (3.9 per cent) of dry socket. Nothing was placed in the wound in the fourth series and 18 cases (37.5 per cent) of dry socket resulted. The fifth series duplicated the third series almost exactly with dry socket incidence of 3.8 per cent. When bacitracin plus gelatin sponge was used in the sixth series of 58 cases, 10 patients developed dry socket giving an incidence of 17.2 per cent—closely approximating the results in the neomycin trial. In the last series in which only 50 mg. of tetracycline plus gelatin sponge were used, no cases of dry socket developed.

Eleven of the 57 cases of dry socket which developed during this study occurred in patients who underwent bi-

lateral mandibular third molar removal. Except in two instances, the dry socket developed on the side in which no anti-biotic had been placed.

It has been traditional to relate the incidence of dry socket with the amount and degree of trauma incidental to the operative procedure. Several references have been cited which contend that there is a parallel in this regard, that is, the more trauma, the more likelihood of dry socket. Most of these views, however, are based on clinical impressions rather than fact. I therefore extended the present investigation to determine the clinical significance of operative trauma.

It is my custom, when recording notes on the patient's chart pertaining to the operative procedure, to indicate in approximate terms the amount of bone relief required to achieve the operative goal. This is a gross estimate since there is no practical method of accurately measuring such bone removal. Nevertheless, it is possible to divide the estimated amount of bone relief into three main categories, arbitrarily: minimal, moderate and considerable. Obviously this has varying significance for different surgeons, but at least in terms of the same

surgeon it has some semblance of reproducibility and consistency. In light of this premise, all of the charts were reviewed and the amount of bone relief was recorded. These results were then compared with the dry socket incidence data (Table 2).

In series 1 (neomycin and gelatin sponge) and series 6 (bacitracin and gelatin sponge) the incidence of dry socket was greatest in patients who required considerable bone relief. However, in the remaining series this correlation was not borne out. Indeed, in series 4 (no dressing used) the correlation was the very reverse, namely, 62.5 per cent incidence of dry socket in patients with minimal bone relief, and 28.6 per cent incidence in patients with considerable bone relief. Finally, all the patients were grouped into the three categories of bone relief irrespective of the socket dressing. The results strongly suggest that there is no correlation whatever between the amount of bone relief (and therefore the amount of trauma) and the incidence of dry socket.

The slight inconsistency between the total number of patients considered for dry socket incidence (361) and those listed

TABLE 2 Incidence of dry socket related to degree of bone relief.

Series	Socket dressing	Bone relief	No. of patients	No. of cases of dry socket	Incidence of dry socket %
1	Neomycin and gelatin sponge	Minimal	6	1	16.6
		Moderate	29	3	10.3
		Considerable	14	4	28.5
6	Bacitracin + gelatin sponge	Minimal	5	0	00.0
		Moderate	46	8	17.4
		Considerable	8	2	25.0
2	Gelatin sponge only	Minimal	8	2	25.0
		Moderate	34	12	35.3
		Considerable	10	3	30.0
3, 5, 7	Tetracycline + gelatin sponge	Minimal	18	0	00.0
		Moderate	104	4	3.8
		Considerable	31	0	00.0
4	Nothing	Minimal	8	5	62.5
		Moderate	32	10	31.3
		Considerable	7	2	28.6
All series combined		Minimal	45	8	17.8
		Moderate	245	37	15.1
		Considerable	70	11	15.7

in the tables for bone relief (360) exists because it was not possible to locate all the original charts, presumably due to filing errors. The original dry socket incidence had been recorded at the time the case was operated.

DISCUSSION

Responsible objections to the topical or local use of antibiotics certainly cause one to pause in considering the routine use of tetracycline as here outlined. For here is an agent which is widely used systemically by the medical and dental professions and is considered a valuable broad-spectrum antibiotic. Although Goodman and Gilman²⁰ describe preparations of tetracycline hydrochloride for topical use in ophthalmic and other conditions, they warn that "indiscriminate surface application of the tetracyclines may lead to sensitization of the patient and subsequent reaction when the drugs are again administered." Herein lies the dilemma then. We apparently have an agent which, on the one hand, can significantly reduce the incidence of this distressing postextraction complication but, on the other hand, may possibly inflict upon this unwitting patient a stigma which could have serious repercussions at some later date.

Knighton²¹ cites certain criticisms of the topical use of antibiotics. In comparing this method with their systemic administration he suggests the following disadvantages: "lack of penetration, greater danger of sensitizing patients, and greater tendency for production of local inflammatory reactions."

Lack of penetration does not really apply in the current consideration since it is only intended to achieve local effects. The sensitizing problem is a theoretical one. But in terms of tetracycline this problem is insignificant since this antibiotic appears to have a truly low sensitizing potential. Not one patient included in this study gave a history of sensitivity to the drug nor did any reaction, untoward or otherwise, develop. Furthermore, a local allergist²² has informed me that he has never encountered a true allergy to tetracycline.

In an effort to obtain some authoritative opinion on the subject, I contacted Henry Welch, former editor of the *Antibiotic Annual* and a recognized expert on antibiotics. Dr. Welch²³ replied: "A number of different antibiotics and combinations, as well as sulphonamides, have been used with some success in this condition. Your study is an interesting one. You are quite right that tetracycline has a very low sensitizing potential, and although I would advise against the use of penicillin, I should not hesitate to use tetracycline routinely with gelatin foam in this condition."

There seems to be general agreement that the sensitizing potential of this agent is low. Moreover, it is important, in considering this matter, to recall that the antibiotic is only being applied once for this particular surgical procedure—not repeatedly. No local inflammatory lesions were encountered in this series with any of the antibiotics used. Therefore this factor, too, cannot be given much credence within the context of this proposition.

It is of interest to note that Quinley et al, in their similar study using 50 mg. tetracycline tablets, found an incidence of dry socket of 33½ per cent when no drug was used. This compares with my results of 37½ per cent under the same conditions. However, with the antibiotic they experienced an incidence of 0.78 per cent as compared with 2.6 per cent in this study. Five hundred and twenty-two third molars (all but 12 with some antibiotic in the wound) comprised Quinley's series whereas 201 third molars (153 with antibiotic and 48 without) were included in my own series (series 3, 4, 5, 7) involving the use of tetracycline. These results therefore appear to support those of the Rochester group rather closely.

The apparent beneficial effect of the locally applied tetracycline in mandibular third molar extraction places the alleged cause of localized alveolar osteitis in question. The results suggest that micro-organisms contaminating the wound are the chief factor instrumental in inducing dry socket since the use of this antibiotic significantly lessens the incidence of this complication. Since dry socket was only decreased 4.8 per cent

(from 37.5 to 32.7 per cent) by the insertion of gelatin sponge alone versus the insertion of nothing into the wound, the inference is that space-obliterating material in itself does not significantly alter the incidence of the complication with which we are concerned. One may therefore speculate that tetracycline plus the absorbable space-obliterating material tip the scale in the direction of clot survival rather than clot dissolution.

Quinley and his associates experienced a foreign body reaction which proved to be unabsorbed tetracycline. "The reaction manifested itself after several weeks when a hard, insoluble black, tarry-looking substance sloughed from the wound." This was not encountered in this present study, presumably because the agent was reduced to powder from its tablet form and then dissolved in sterile saline before the gelatin sponge was allowed to soak up the solution. There was, therefore, no particulate matter to serve as a foreign body nidus.

Dentists are obligated to reduce the morbidity accompanying certain of the routine procedures performed in daily practice. This must not be done, however, at the sacrifice of other more significant natural or clinical safeguards to the patient's health. Members of the health professions are well aware of the disservice rendered a patient when penicillin is used topically on epithelium. This practice is held in disrepute. In 1956 the Council on Dental Therapeutics of the American Dental Association classed topical penicillin products in Group D and discontinued their listing in *Accepted Dental Remedies*. The risk of sensitizing a patient to penicillin or of inducing an allergic response in an already sensitized patient by this method of application is too great to warrant its use in dentistry.

The present investigation was therefore concerned with antibiotics which have come to be recognized as effective and acceptable agents when used for topical or local application. Bacitracin and neomycin fall into this category. They are seldom used parenterally because of their acknowledged nephrotoxic effects. The classical argument against topical use is thereby overcome in the case of these two agents. However, the results of this

study suggest that neither bacitracin nor neomycin offers the apparent benefits to be gained from tetracycline. If we consider the three series involving tetracycline, we find four cases of dry socket in 153 patients—an incidence of 2.6 per cent versus an incidence of 16 per cent with neomycin, 17.2 per cent with bacitracin, or 37.5 per cent when nothing was placed in the wound. A reduction of this magnitude surely bears some consideration.

Although this investigation may not withstand the critical surveillance of the statistician, there was sufficient regard for the minimizing of variables and the preservation of constants to make the results suggestive of a significant finding. It would be a natural and fitting sequel if a double-blind technique were adopted in a similar study. This is now contemplated and, if properly and faithfully executed, should serve to confirm or deny the validity of these findings.

SUMMARY

A clinical appraisal of the use of gelatin sponge and tetracycline to discourage the occurrence of dry socket in 153 patients is described. Only mandibular third molars which required some degree of bone relief for their delivery were included in this study. All extractions were performed under local anaesthesia using 2 per cent mepivacaine with levonordefrin 1:20,000 as the vasoconstrictor. The operations were performed and all post-operative observations made by the writer alone. Some gross semblance of control was provided by a group of 48 patients where nothing was placed in the socket and another 52 patients where gelatin sponge only was placed in the socket. On the basis of this study it would appear that the combination of gelatin sponge and tetracycline can reduce the incidence of alveolar osteitis from 37.5 per cent to under 3 per cent in the case of mandibular third molar removal under local anaesthesia. A discussion of the relative merits and demerits of using antibiotics locally for this purpose is included. An interesting by-product was the revelation that the incidence

of dry socket is apparently unrelated to the degree of bone relief incidental to the operation.

1. Dorland, W. A. N. Dorland's illustrated medical dictionary. Ed. 23. Philadelphia, Saunders, 1957.
2. Thoma, K. H. Oral surgery. Ed. 2. St. Louis, Mosby, 1952. 2 Vols.
3. Krogh, H. W. Incidence of dry socket. J.A.D.A. & Den. Cosmos 24:1829, 1937.
4. Erickson, R. I., Waite, D. E. and Wilkison, R. H. Study of dry sockets. Oral Surg., Oral Med. & Oral Path. 13:1046, 1960.
5. Archer, W. H. A manual of oral surgery; a step-by-step atlas of operative techniques. Ed. 2. Philadelphia, Saunders, 1956.
6. Lehner, T. Analysis of one hundred cases of dry socket. D. Practitioner & D. Record 8:275, 1958.
7. Hansen, E. H. Alveolitis sicca dolorosa (dry socket): frequency of occurrence and treatment with trypsin. J. Oral Surg., Anes. & Hosp. D. Serv. 18:409, 1960.
8. Gustafson, Gunnar and Wallenius, Kjell. Effect of local application of trypsin on postextraction alveolar osteitis. Oral Surg., Oral Med. & Oral Path. 14:280, 1961.
9. Adkisson, S. R. and Harris, P. F. A statistical study of alveolar osteitis. U. S. Armed Forces M. J. 7:1749, 1956.
10. Millhon, J. A., Austin, L. T., Stafne, E. C. and Gardner, B. S. Evaluation of the sulfa drug and other dressings in "dry socket" in lower third molars. J.A.D.A. 30:1839, 1943.
11. Quinley, J. F., Royer, R. Q. and Gores, R. J. "Dry socket" after mandibular odontectomy and use of soluble tetracycline hydrochloride. Oral Surg., Oral Med. & Oral Path. 13:38, 1960.
12. Alling, C. C. and Kerr, D. A. Trauma as a factor causing delayed repair of dental extraction sites. J. Oral Surg. 15:3, 1957.
13. Harang, H. L. Prevention of dry sockets in the extraction of teeth. Oral Surg., Oral Med. & Oral Path. 1:601, 1948.
14. Bernier, J. L. The management of oral disease; a treatise on the recognition, identification, and treatment of diseases of the oral regions. St. Louis, Mosby, 1955.
15. Bear, S. E. Surgical bacteriology. In: Kruger, G. O. Textbook of oral surgery. St. Louis, Mosby, 1959.
16. Grandstaff, C. H. The influence of oral bacteria on healing of exodontia wounds. Bur, 35:90, 1935. Abstract.
17. Alling, C. C. Postextraction osteomyelitic syndrome. D. Clin. N. America p. 621, 1959.
18. Streat, L. P. Personal communication. May 9, 1963.
19. Waite, D. E. Dry socket (Localized osteitis). Practical Dental Monographs p. 3, November 1957.
20. Goodman, L. S. and Gilman, A. The pharmacological basis of therapeutics. Ed. 2. New York, Macmillan, 1956.
21. Knighton, H. T. Consideration of topical antibiotic therapy in dentistry. D. Clin. N. America p. 101, 1958.
22. Horan, J. D. Personal communication. January 6, 1965.
23. Welch, H. Personal communication. March 28, 1963.

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Are you going to the CDA National Convention in Halifax June 12-15? If so, don't miss a visit to Province House, seat of the Legislative Assembly of Nova Scotia. The sandstone structure was completed in 1819 and is reputed to be one of the first examples of Georgian architecture in North America. Inside Province House is the beautiful Red Chamber in which royalty has held receptions. Also located in Province House is the provincial library, at one time site of the Supreme Court of Nova Scotia where Joseph Howe in a successful defence of a charge of libel won acquittal and freedom of the press in Canada. Province House is also the site of the nation's first printing press on which was printed the first Canadian newspaper.



1963 Survey of Dental Practice

Enquête de 1963 sur la profession dentaire

2. Incomes from private practice, part-time and full-time salaried employment

2. Revenu provenant de l'exercice privé et des emplois à temps partiel ou à temps complet

Bureau of Economic Research

Bureau des recherches économiques

In this study, net income from private practice is defined as total receipts from dental practice minus practice expenses. Income tax has not been deducted from net income. Salaries of dentists in salaried employment are gross salaries before income tax and other deductions have been made.

'Mean' income is the sum of all the incomes of the dentists surveyed divided by the number of dentists surveyed. It is the most frequently used average. 'Median' income is the middle income when the incomes of all dentists surveyed are ranked in order from the lowest to the highest. One-half of all dentists earns more than the median income while the other half earns less.

Income figures contained in this study and in the Department of National Revenue's *Taxation Statistics* are not compar-

Pour les fins de cette étude, on définit le revenu net de l'exercice privé comme étant la différence qui existe entre le total des recettes brutes et celui des dépenses du cabinet dentaire. On ne tient pas compte du montant d'impôt sur le revenu à payer pour calculer le revenu net. Les salaires mentionnés ici sont les salaires bruts tels qu'ils sont payés avant l'impôt sur le revenu et les autres déductions.

Le revenu 'moyen' est obtenu en divisant le total des revenus des dentistes sujets à l'enquête, par le nombre de ces mêmes dentistes. Le revenu 'médian' est celui qui se situe au milieu de la liste lorsque l'on aligne le revenu de tous les dentistes par ordre croissant. La moitié des dentistes gagnent plus du revenu médian, tandis que l'autre moitié gagnent moins.

able. The Department's figures include all dentists filing T1 general returns with net incomes of \$15,000 in Montreal and Toronto and \$10,000 in other districts. They also include the incomes of some other dentists whose returns happen to be included in a 5 per cent sample of all T1 general returns whether or not these dentists worked a full year in 1963.

The Survey of Dental Practice analyses the incomes of dentists who responded to the 1963 questionnaire. Incomes of dentists not working a full year in 1963 were not included in annual average income figures. The incomes of the dentists responding to the survey may not be representative of the incomes of all dentists. For example, the provinces with the highest response rates were the provinces where dentists earned the highest incomes. Similarly, more dentists in the age groups with the highest incomes replied to the questionnaire than did older dentists.

DENTISTS EARN \$14,900 BEFORE TAXES

All Dentists. — The average pre-tax income of all dentist-respondents together — those in private practice, full and part-time salaried employment — was \$14,881. Fifty per cent of these dentists made more than \$14,075 while conversely 50 per cent made less than this amount. One-quarter of the dentists with the lowest incomes made under \$10,290. One-half of all dentists made between \$10,290 and \$18,895 while the remaining one-quarter made more than \$18,895. Only 3 to 4 per cent of the profession had incomes exceeding \$30,000 (Table 1).

Dentists in Private Practice. — Dentists included in this category are those whose earnings were solely from private practice. If a dentist also received income from a dental appointment or salaried position in 1963, he was classified as 'part-time salaried.'

The mean income of dentists in private practice was \$15,374 in 1963. Fifty per cent of all independent dentists earned more than \$14,903. One-quarter of them earned more than \$19,546 and one-quarter earned less than \$10,640.

Les montants des revenus que mentionne cette étude et ceux qui apparaissent dans les *Statistiques fiscales* du Ministère du revenu national ne sont pas comparables. Les chiffres du Ministère comprennent tous les dentistes qui remplissent des formules T1 générales et qui ont des revenus supérieurs à \$15,000.00 pour la région de Montréal et de Toronto, et supérieur à \$10,000.00 dans les autres districts. Les chiffres du gouvernement comprennent en plus les revenus d'autres dentistes dont les rapports font partie d'un groupe de 5 pour cent choisi au hasard parmi toutes les formules T1 générales, sans que l'on se préoccupe de savoir si ces dentistes ont travaillé une année complète en 1963.

L'enquête sur la profession dentaire étudie les revenus des dentistes qui ont répondu au questionnaire de 1963. Les revenus des dentistes qui n'ont pas travaillé une année complète en 1963 ont été laissés de côté dans le calcul de la moyenne des revenus annuels. Les revenus des dentistes qui ont répondu au questionnaire ne sont pas nécessairement représentatifs des revenus de tous les dentistes. Ainsi, les provinces qui ont montré le plus haut pourcentage de retour des questionnaires sont les provinces où les dentistes gagnent le plus. De la même façon, les dentistes qui sont à l'âge où l'on gagne le plus ont répondu davantage au questionnaire que les dentistes plus âgés.

LES DENTISTES GAGNENT \$14,900.00, IMPÔT NON DÉDUIT

Ensemble des dentistes. — La moyenne de revenu avant l'impôt de tous les dentistes ayant répondu au questionnaire, qu'ils soient en pratique privée, à salaire plein temps ou temps partiel, est de \$14,881.00. Cinquante pour cent de ces dentistes gagnent plus de \$14,075.00, alors que 50 pour cent gagnent moins que ce montant. Le quart des dentistes gagnent moins que \$10,290.00; c'est le groupe dont le revenu est le moindre. La moitié gagnent entre \$10,290.00 et \$18,895.00, alors que le dernier quart gagnent plus de \$18,895.00. Trois ou quatre pour cent

TABLE 1 Percentage of dentists in each net income group • Proportion de dentistes dans chaque groupe de revenu net.

Net income	All dentists	Private practice	Part-time salaried	Full-time salaried
Revenu net	Tous les dentistes	Exercice privé	Salarié à temps partiel	Salarié à plein temps
	%	%	%	%
Under — \$ 5,000	2.7	2.9	1.9	2.1
Moins de \$ 5,000 — 9,999	20.3	18.6	10.8	38.2
10,000 — 14,999	32.2	29.0	29.9	51.7
15,000 — 19,999	24.7	26.7	32.1	6.7
20,000 — 24,999	12.5	14.2	15.4	0.9
25,000 — 29,999	4.4	5.0	5.9	—
30,000 or more ou plus	3.2	3.6	4.0	0.4
Total	100.0	100.0	100.0	100.0

Since the first Survey of Dental Practice in 1953, the net incomes of dentists in private practice have more than doubled. They increased from \$7,541 in 1953 to \$10,453 in 1958 to \$15,374 in 1963. The increase in the second five year period, 1958-1963, was absolutely and proportionately greater than the increase in the preceding period from 1953 to 1958.

Part-time Salaried Dentists. — These dentists are ones who in addition to net income received from private practice have earned income from part-time salaried appointments. In 1963 theirs were the highest average incomes. Their mean average was \$16,616 with one-half of them making more than \$15,899. In 1963, one-quarter of them earned less than \$12,625 while another quarter made more than \$20,000 (Table 1).

Full-time Salaried Dentists. — Compared with other dentists, dentists in salaried employment have a fairly narrow income range. According to the survey, one-half of them earned between \$8,882 and \$12,262. Their mean average income was \$10,624 while their median or middle income was \$10,562. On the average, the salaried dentist made 31 per cent (\$4,750) less than his confrère in private practice. He does, of course, have the advantage of fringe benefits not included in income from his salary.

seulement de la profession gagnent plus de \$30,000.00 (Tableau 1).

Exercice privé.—Ce groupe comprend les dentistes dont la seule source de revenu est l'exercice de leur profession. Un dentiste qui a reçu un salaire quelconque en 1963 est placé dans le groupe 'salarier à temps partiel.'

La moyenne de revenu 1963 des dentistes en exercice privé est de \$15,374.00. Cinquante pour cent d'entre eux gagnent plus de \$14,903.00. Un quart gagnent plus de \$19,546.00 et un quart moins de \$10,640.00.

Depuis l'enquête de 1953, le revenu net des dentistes en exercice privé a plus que doublé. Il est passé de \$7,541.00 en 1953 à \$10,453.00 en 1958, et à \$15,374.00 en 1963. L'augmentation qui s'est produite dans la seconde période de cinq ans, soit de 1958 à 1963, est de façon absolue et proportionnelle plus grande que l'augmentation de la période précédente, soit de 1953 à 1958.

Salariés à temps partiel. — Dans cette catégorie, on a placé les dentistes qui, en plus du revenu net de leur exercice privé, ont reçu en 1963 un salaire provenant d'un poste ou d'un emploi à temps partiel. Ce sont eux qui en 1963 gagnent le plus. Leur moyenne est de \$16,616.00, cinquante pour cent d'entre eux faisant plus de \$15,899.00. Un quart d'entre eux

The salaried dentist's 1963 income was well above the \$5,783 he earned in 1953 and the \$7,529 earned in 1958. His income has not grown as fast as that of the dentist in private practice; the difference between incomes from salaried and private practice has, therefore, widened.

SASKATCHEWAN DENTISTS EARN MOST

All Dentists. — Combined mean net incomes for dentists in private practice and part-time and full-time salaried positions varied from a low of \$11,731 in Prince Edward Island to a high of \$16,420 in Saskatchewan. Regionally, both median and mean net incomes were lowest in Quebec and the Atlantic Provinces and highest in British Columbia, Ontario and the Prairie Provinces in that order (Table 2). There were, however, great variations in the averages for provinces within these regions. Saskatchewan's average incomes ranked the highest in the country, for example, while Manitoba's were in sixth place. Median net income in Newfoundland was 50 per cent more than in Prince Edward Island.

Dentists in Private Practice. — Mean net incomes of private practitioners ranged from \$17,243 in Saskatchewan to \$11,690 in Nova Scotia. Within these two extremes, the provinces ranked as follows: (1) Saskatchewan, (2) British Columbia, (3) Alberta, (4) Ontario, (5) Newfoundland, (6) Manitoba, (7) New Brunswick, (8) Prince Edward Island, (9) Quebec, (10) Nova Scotia.

Net incomes have risen considerably since the first Survey of Dental Practice in 1953. Average net incomes have more than doubled in six provinces (Newfoundland, Prince Edward Island, Quebec, Ontario, Manitoba and British Columbia). The smallest increase was in New Brunswick where the 1963 average net income was two-thirds higher than in 1953. There was a tendency for the provinces which had the biggest increases in the five year period from 1953 to 1958 to have the smallest increases in the following five year period, 1958 to 1963, and vice versa.

For example, four of the five provinces

gagnent moins de \$12,625.00 alors qu'un quart gagnent plus de \$20,000.00 (Tableau 1).

Salariés à plein temps. — Par rapport à celui de leurs confrères, le salaire des dentistes qui travaillent à temps complet varie très peu. La moitié d'entre eux gagnent entre \$8,882.00 et \$12,262.00. Leur revenu moyen est de \$10,624.00 alors que leur revenu médian est de \$10,562.00. En moyenne, le dentiste salarié gagne 31 pour cent ou \$4,750.00 de moins que son confrère qui exerce privément. Il ne faut cependant pas oublier qu'il profite de bénéfices marginaux qui ne sont pas comptés dans son salaire.

Pour 1963, le revenu du dentiste salarié est bien supérieur aux \$5,783.00 qu'il gagnait en 1953 et aux \$5,729.00 qu'il gagnait en 1958. Son revenu n'a pas augmenté aussi vite que celui du dentiste qui exerce privément. La marge qui existe entre son revenu et celui du dentiste qui exerce en pratique privée a donc augmenté.

REVENU PLUS ÉLEVÉ EN SASKATCHEWAN

Ensemble des dentistes. — Le revenu moyen combiné de tous les dentistes qu'ils soient en pratique privée ou à salaire, varie d'un minimum de \$11,731.00 à l'Île du Prince-Edouard à un maximum de \$16,420.00 en Saskatchewan. Calculé sur une base régionale, le revenu médian et le revenu moyen sont les plus bas au Québec et dans les provinces maritimes, et les plus hauts en Colombie britannique, en Ontario et dans les Prairies (Tableau 2). Il y a cependant des variations considérables dans les moyennes provinciales de chacune de ces régions. Par exemple, les revenus de la Saskatchewan sont les plus élevés de tout le pays, alors que ceux du Manitoba arrivent en sixième position. Le revenu médian net est de 50 pour cent plus élevé à Terre-neuve qu'à l'Île du Prince-Edouard.

Exercice privé. — Les revenus nets moyens des dentistes qui exercent privément varient de \$17,243.00 en Saskatchewan à \$11,690.00 en Nouvelle-Ecosse. Entre ces

TABLE 2 Median net income from east to west • Revenu net médian de l'est à l'ouest.

Region	All dentists Tous les dentistes	Private practice Exercice privé	Part-time salaried Salarié à temps partiel	Full-time salaried Salarié à plein temps	Région
Atlantic	\$12,300	\$12,500	\$14,300	\$10,000	Provinces maritimes
Quebec	12,000	10,900	13,800	11,300	Québec
Ontario	14,800	15,500	16,800	10,400	Ontario
Prairie	14,500	15,900	16,300	10,800	Provinces de l'ouest
British Columbia	15,900	17,100	14,500	10,700	Colombie britannique

with the largest percentage increases in net income between 1953 and 1958 were among the five provinces with the lowest percentage increases from 1958 to 1963.

The percentage spread between the mean net income of the province with the highest incomes from dental practice and that of the province with the lowest incomes is now less than it was in 1953 or 1958. There seems to have been, therefore, a slight tendency towards more uniformity in dental incomes across the country.

Part-time Salaried Dentists.—Mean net incomes of dentists who combine part-time salaried positions with private practice were highest in the provinces of Alberta (\$18,849) and Ontario (\$17,300). The mean average in Alberta was the highest average net income earned by dentists in any type of employment in any province. Many of the dentists in part-time salaried employment in Alberta and Ontario are on the staffs of the dental schools in Edmonton and Toronto.

Full-time Salaried Dentists.—The average salaries of dentists in full-time salaried employment were highest in the provinces of Saskatchewan, Nova Scotia and Quebec. These provinces all had average salaries of between \$11,000 and \$13,000. The provinces with the lowest salaries were Newfoundland, New Brunswick and Prince Edward Island.

NET INCOMES RISE WITH CITY SIZE

Dentists in Private Practice.—The mean net incomes of dentists in private prac-

two positions extrêmes, les provinces s'échelonnent comme ceci: (1) Saskatchewan, (2) Colombie britannique, (3) Alberta, (4) Ontario, (5) Terre-Neuve, (6) Manitoba, (7) Nouveau-Brunswick, (8) Ile du Prince-Edouard, (9) Québec, (10) Nouvelle-Ecosse.

Les revenus nets ont augmenté d'une façon considérable depuis la première enquête sur la profession dentaire conduite en 1953. Les revenus moyens nets ont plus que doublé dans six provinces (Terre-Neuve, Ile du Prince-Edouard, Québec, Ontario, Manitoba et Colombie britannique). La plus petite augmentation se rencontre au Nouveau-Brunswick où les revenus moyens nets de 1963 sont des deux tiers plus élevés que ceux de 1953. Les provinces qui ont eu les plus fortes augmentations dans la période de 1953 à 1958 semblent avoir l'augmentation la plus faible dans la période de cinq ans suivante, soit de 1958 à 1963, et vice versa.

Ainsi, quatre des cinq provinces qui ont eu les plus grosses augmentations du pourcentage des revenus nets entre 1953 et 1958 se retrouvent parmi les cinq provinces ayant le plus bas pourcentage pour les périodes de 1958 à 1963.

Il y a moins de différence entre les moyennes extrêmes de revenus provinciaux qu'il n'y en avait en 1953 et 1958. On semble donc voir une tendance vers une plus grande uniformité de revenus à travers le pays.

Salaires à temps partiel.—Les revenus nets moyens des dentistes qui détiennent un poste à temps partiel tout en exerçant leur profession de façon privée, sont les plus hauts dans les provinces d'Alberta (\$18,849.00) et d'Ontario (\$17,300.00). La

tice tended to rise unevenly with the size of city until a high of \$17,540 was reached in cities of 100,000 to 250,000 people. Net incomes then fell and the average was \$14,881 for cities with over half a million inhabitants. Dentists' incomes in cities with populations between 100,000 and 250,000 were 93 per cent higher than (that is almost double) incomes in villages of under 1,000 people.

In 1958, the highest mean net income was made by dentists in cities of 50,000 to 100,000 people while in 1953 cities of 250,000 to 500,000 showed the highest dental incomes. The city sizes experiencing the greatest percentage increase in incomes in the past 10 years were small towns of 1,000 to 5,000 inhabitants and cities of 100,000 to 250,000. The city sizes experiencing the smallest increases between 1953 and 1958 — towns under 5,000 — showed the greatest increases in the period 1958 to 1963.

Part and Full-time Salaried Dentists. — An analysis by city size of the net incomes of dentists in part and full-time salaried employment reveals no pattern. The highest incomes of part-time salaried dentists were recorded in cities of 250,000 to 500,000 population. Fifty per cent of these dentists reported incomes in excess of \$17,400 a year, and the mean income was \$18,730.

DENTISTS 35 TO 39 YEARS TOP INCOME EARNERS

Dentists in Private Practice. — The mean net incomes of dentists in private practice rose steeply from \$12,515 for dentists between 25 and 29 years to a peak of \$18,067 earned by dentists 35 to 39 years of age. Thereafter, they fell steadily. At the age of 55 to 59 years, dentists had mean net incomes of \$12,862; dentists 10 years older averaged only \$9,984.

Among dentists of 35 or more years, older dentists made less than younger dentists. This does not mean, however, that as a dentist grows older he earns less. For example, dentists who were between the ages of 60 and 64 years in 1963 were 50 to 54 years in 1953. Since then, their net incomes have risen from \$8,344

moyenne en Alberta est la plus haute moyenne de revenu net gagné par les dentistes de quelque catégorie que ce soit dans toutes les provinces. Plusieurs des dentistes salariés à temps partiel, en Alberta et en Ontario, font partie du personnel des facultés dentaires d'Edmonton et de Toronto.

Salaires à temps complet. — La moyenne des salaires des dentistes qui détiennent des emplois à temps complet, est la plus haute dans les provinces de Saskatchewan, Nouvelle-Ecosse et Québec. Ces provinces ont des salaires dont la moyenne varie de \$11,000.00 à \$13,000.00. Les provinces où les salaires sont les plus bas sont Terre-Neuve, le Nouveau-Brunswick et l'Île du Prince-Édouard.

LE REVENU NET EST PLUS ÉLEVÉ DANS LES GRANDES VILLES

Exercice privé. — Le revenu net moyen des dentistes qui exercent de façon privée tend à monter de façon inégale, proportionnellement à la population de la ville, jusqu'à une moyenne de \$17,540.00 atteinte dans les villes de 100,000 à 250,000 de population. Ensuite, les revenus nets diminuent, et l'on a une moyenne de \$14,881.00 dans les villes qui ont plus d'un demi million d'habitants. Le revenu des dentistes qui exercent dans des villes dont la population est de 100,000 à 250,000 habitants est environ 93 pour cent plus haut que le revenu de ceux qui exercent dans des villages de moins de 1,000 habitants.

En 1958, la plus haute moyenne de revenu net appartenait à des dentistes qui exerçaient dans des villes de 50,000 à 100,000 habitants, alors qu'en 1953, les villes de 250,000 à 500,000 de population avaient les revenus dentaires les plus élevés. Les villes qui ont été témoins des plus fortes augmentations de moyennes de revenus dans les 10 dernières années sont les petites villes de 1,000 à 5,000 habitants et les villes de 100,000 à 250,000. Les villes qui ont vu les plus petites augmentations entre 1953 et 1958, sont les villes de moins de 50,000 habitants. Elles ont par ailleurs montré les plus hautes augmentations dans les périodes de 1958 à 1963.

to \$12,508 (in current dollars), an increase of 50 per cent. At the same time, the net incomes of private practitioners of all ages have more than doubled. Dentists of all ages have had rising net incomes in the past ten years. The incomes of dentists over 50, however, have not risen as fast as the incomes of younger dentists.

Part-time Salaried Dentists.—Dentists who combine part-time salaried positions with private practice reached top incomes of \$20,046 at 50 to 54 years of age. By the age of 60 to 64, the average had fallen to \$13,103 and, at 65 to 69 years, it was \$11,339.

Full-time Salaried Dentists.—Salaried dentists' incomes neither rose nor fell as steeply as the incomes of dentists in private practice. The years of highest average earnings were from 35 to 54, with the highest mean average of \$12,373 being reached between the ages of 50 and 54. At no age is the mean average income of salaried dentists greater than that of dentists in private practice, but the absolute and proportionate differentials between the two decrease from the age of 35 up to the age of 60.

Salaires à temps complet et à temps partiel.—Il ne semble pas y avoir de relation entre l'importance de la ville et le revenu net des dentistes qui sont salariés à temps partiel ou à plein temps. Les revenus les plus élevés des dentistes salariés à temps partiel se rencontrent dans des villes de 250,000 à 500,000 de population. Cinquante pour cent de ces dentistes ont indiqué un revenu qui dépasse \$17,400.00 par année, et le revenu moyen est de \$18,730.00.

LE REVENU MAXIMUM SE RENCONTRE ENTRE 35 ET 39 ANS

Exercice privé.—Le revenu net moyen des dentistes qui exercent privément montre une hausse abrupte passant de \$12,515.00 pour les dentistes qui ont entre 25 et 29 ans, à un maximum de \$18,067.00 que gagnent les dentistes de 35 à 39 ans. Ensuite, la moyenne diminue rapidement. Entre 55 et 59 ans, les dentistes ont un revenu moyen net de \$12,862.00. Le groupe 65 à 69 ans a un revenu qui n'est que de \$9,984.00.

Parmi les dentistes de plus de 35 ans, les dentistes les plus âgés gagnent moins que les plus jeunes. Ce qui ne veut pas dire cependant que les dentistes gagnent

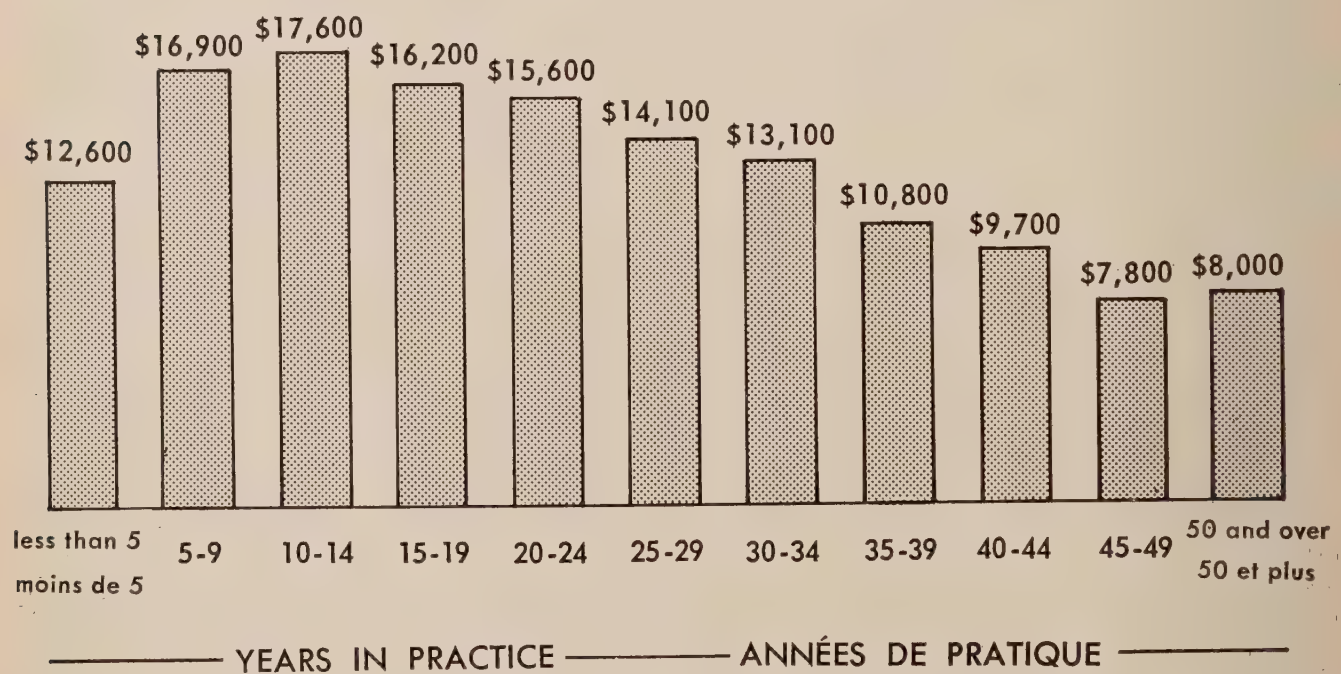


FIGURE 1 Dentists in practice less than five or over 35 years have the lowest median incomes • Le revenu médian le plus bas se rencontre chez les dentistes de moins de cinq ans ou plus de 35 ans de pratique.

NET INCOMES HIGHEST FOR DENTISTS IN PRACTICE 10 TO 14 YEARS

Dentists in Private Practice. — The average net incomes of dentists in private practice rise for the first 10 to 14 years after graduation from dental school and fall thereafter (Figure 1). The highest average net income was earned by dentists who graduated between 1949 and 1953. These dentists also had the highest net incomes in 1958. At the time of the 1953 survey, these dentists, who had been in practice for less than five years, were earning \$6,732. In the next five years, their net incomes increased 84.5 per cent so that by 1958 they had reached an average income of \$12,423. By 1963, their mean net earnings had climbed another 45.8 per cent to \$18,109. Similarly, between 1958 and 1963, graduates of the 1954 to 1958 classes doubled their net incomes from \$8,370 to \$17,073. In the first five years of practice, therefore, a newly graduated dentist can expect a rapid increase in net income. Increases in succeeding five year periods of practice will probably not be anywhere near the magnitude of the increase during their first five year period.

Dentists who had been in practice for only one year earned mean net incomes of \$9,516. Those who had been graduated for two, three and four years earned \$12,448, \$13,646 and \$14,556 respectively.

Part-time and Full-time Salaried Dentists. — Dentists in part-time private practice and part-time salaried employment reached a top mean net income (\$20,661) 25 to 29 years after graduation. Salaried dentists reached their peak income of \$12,638 at the same time.

DENTISTS IN PARTNERSHIPS NET MORE

Seventy-three per cent of the dentists responding to the 1963 Survey of Dental Practice were in full-time private practice. Another 13 per cent were in private practice on a part-time basis.

Of those dentists in full-time private practice, 62 per cent were in solo prac-

moins en devenant plus vieux. Par exemple, les dentistes qui avaient entre 60 et 64 ans en 1963 n'avaient que de 50 à 54 ans en 1953. En 1953, leur revenu était de \$8,344.00. Il a passé maintenant à \$12,508.00, soit une augmentation de 50 pour cent. Durant la même période, le revenu net de tous les praticiens a plus que doublé. Les dentistes, indépendamment de leur âge, ont augmenté leur revenu dans les dernières 10 années. Cependant, le revenu des dentistes de plus de 50 ans n'a pas augmenté aussi vite que celui des dentistes plus jeunes.

Salariés à temps partiel. — Les dentistes qui gagnent un salaire à temps partiel tout en exerçant leur profession, atteignent leur revenu maximum de \$20,046.00 entre 50 et 54 ans. Lorsqu'ils atteignent le groupe de 60 à 64 ans, leur moyenne tombe à \$13,103.00 et à \$11,339.00 lorsqu'ils atteignent le groupe de 65 à 69 ans.

Salariés à temps complet. — Le revenu des dentistes salariés à temps complet n'augmente ni ne diminue aussi brusquement que celui des dentistes qui exercent de façon privée. C'est entre 35 et 54 ans que l'on gagne le plus. La moyenne la plus élevée, soit \$12,373.00, est atteinte entre 50 et 54 ans. Le revenu moyen des dentistes salariés n'est jamais plus élevé que celui des dentistes qui exercent privément. Mais les différences absolue et proportionnelle qui existent entre les revenus des deux catégories de dentistes varient inversement à l'âge dans les limites de 35 à 60 ans.

REVENU MAXIMUM ATTEINT DE 10 À 14 ANS APRÈS LA GRADUATION

Exercice privé. — Le revenu net moyen des dentistes qui exercent privément augmente de la 10ème à la 14ème année après la graduation, pour diminuer ensuite. Les plus hautes moyennes de revenu appartiennent aux dentistes qui ont gradué entre 1949 et 1953. Ces dentistes avaient aussi le plus haut revenu en 1958. Au moment de l'enquête de 1953, ils n'avaient été en pratique que cinq ans ou moins, et gagnaient une moyenne de

Table 3 Comparison of median incomes • Comparaison entre les revenus médians.

Solo practice	\$14,900	Pratique individuelle
Sharing costs	14,400	Partageant les dépenses
Partnership	16,300	Avec un associé
Part-time salaried	15,900	Salarié à temps partiel
Full-time salaried	10,600	Salarié à temps complet

tice without partners and with no sharing of costs. Eight per cent were without partners but were sharing the costs of their offices or assistants. Finally, three per cent were partners in a complete partnership. This latter group had a mean net income of \$16,501 before taxes compared with \$15,312 for dentists in solo practice and \$15,111 for dentists who shared costs.

DENTISTS EMPLOYED BY DENTAL SCHOOLS
EARN HIGHEST SALARIES

Of all respondents to the survey, 13 per cent were in full-time salaried positions. The largest number of these dentists were in the Royal Canadian Dental Corps (4 per cent). Two per cent were employees of municipal governments while smaller numbers were employed by the federal and provincial governments, by dental schools and other dentists.

Those dentists employed by dental schools had the highest salaries. Their

\$6,732.00. Dans les cinq années qui ont suivi, leur revenu net a augmenté de 84.5 pour cent, de sorte qu'en 1958, il avait atteint une moyenne de \$12,423.00. En 1963, leur moyenne avait augmenté d'un autre 45.8 pour cent pour atteindre \$18,109.00. De la même façon, entre 1958 et 1963, les dentistes qui avaient obtenu leur diplôme entre 1954 et 1958 ont doublé leur revenu, passant de \$8,370.00 à \$17,073.00. Dans les cinq premières années durant lesquelles il exerce sa profession, un jeune dentiste peut donc s'attendre à une augmentation rapide de son revenu net. L'augmentation dont il bénéficiera dans les cinq années à suivre ne sera probablement pas aussi forte que celle qu'il aura connue au cours des cinq premières années.

Les dentistes qui n'ont exercé leur profession que pendant une année, ont montré un revenu net de \$9,516.00. Ceux qui ont exercé leur profession durant deux, trois et quatre ans, ont gagné \$12,448.00, \$13,646.00 et \$14,556.00 respectivement.

Salaires à temps complet et à temps partiel.—Les dentistes qui partagent leur temps entre un poste salarié et l'exercice de leur profession atteignent un maximum de revenu net de \$20,661.00 de 25 à 29 ans après leur graduation. Les dentistes salariés à temps complet atteignent leur revenu maximum de \$12,638.00 à peu près en même temps.

LES DENTISTES QUI ONT DES ASSOCIÉS
GAGNENT DAVANTAGE

Soixante-treize pour cent des dentistes qui ont répondu au questionnaire de 1963 exercent leur profession à temps complet, de façon privée. Un autre 13 pour cent ne consacre qu'une partie de son temps à l'exercice privé.

De tous les dentistes qui consacrent tout leur temps à l'exercice privé, 62 pour cent travaillent seuls, sans associés et sans partager leurs dépenses. Huit pour cent n'ont pas d'associés, mais partagent les dépenses de bureau et les salaires des assistantes. Enfin, 3 pour cent sont en association vraie. Ce dernier groupe a un revenu net moyen de \$16,501.00 avant les

TABLE 4 How hours spent in practice vary with net incomes earned • Rapport qui existe entre les heures de travail et le revenu net.

Net income	Median work year hours
Revenu net	Médian d'heures annuelles
Under — \$ 5,000	1,412
Moins de \$ 5,000 — 9,999	1,873
10,000 — 14,999	1,935
15,000 — 19,999	1,912
20,000 — 24,999	1,918
25,000 — 29,999	2,035
30,000 or more ou plus	1,962

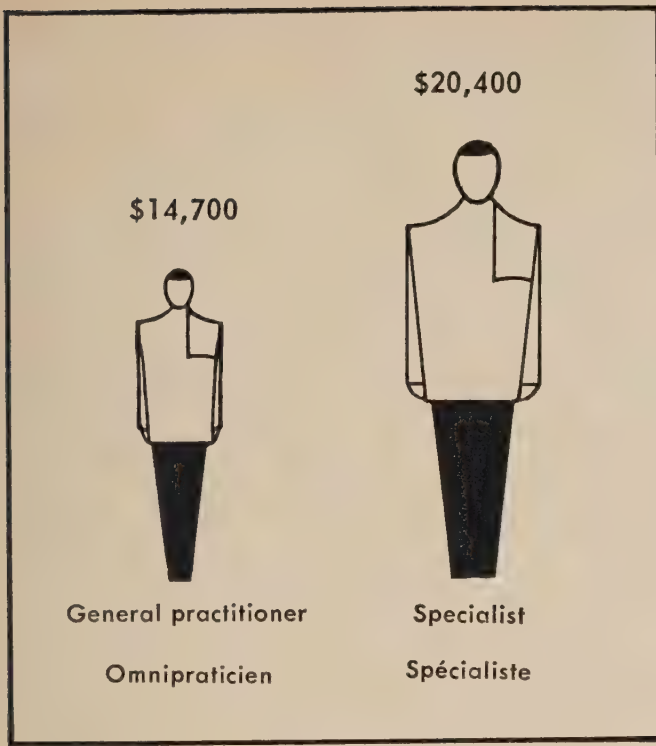


FIGURE 2 Specialists' median incomes are 39 per cent higher than those of general practitioners • Le revenu médian des spécialistes est de 39 pour cent plus élevé que celui des omnipraticiens.

mean average salary was \$12,916 while one-half of them reported incomes of over \$13,071 a year. Employees of other dentists also had a comparatively high mean average net income (\$11,271).

SPECIALISTS AVERAGE \$20,600

Of all private practitioners replying to this survey, 94.5 per cent were in general practice. Percentages of specialists were as follows: orthodontists, 2.6; oral surgeons, 1.0; periodontists, 0.6; other specialists, 1.3.

General practitioners in full-time private practice reported an average mean net income of \$15,149 with 50 per cent of them earning over \$14,699. The mean income of specialists in full-time practice was \$20,626. This was 36.2 per cent higher than the mean for general practitioners (Figure 2). Orthodontists earned higher net incomes than other specialists (\$22,301 mean, \$21,000 median). The mean average net income of periodontists was

taxes, qui se compare avantageusement à \$15,312.00 pour les dentistes qui exercent individuellement, et \$15,111.00 pour les dentistes qui partagent les dépenses.

LE PERSONNEL DES FACULTÉS DENTAIRES GAGNE LES SALAIRES LES PLUS ÉLEVÉS

De tous ceux qui ont répondu au questionnaire, 13 pour cent occupent des postes à temps complet. La plupart de ces dentistes (4 pour cent) sont membres du Corps dentaire royal canadien. Deux pour cent sont à l'emploi des gouvernements municipaux, alors qu'un plus petit nombre sont à l'emploi du gouvernement fédéral, des gouvernements provinciaux, des écoles dentaires, ou d'autres dentistes.

Les dentistes qui sont à l'emploi des facultés dentaires gagnent les salaires les plus élevés. Leur salaire moyen est de \$12,916.00 et la moitié d'entre eux indiquent des salaires qui dépassent \$13,071.00 par année. Les dentistes qui travaillent pour un autre montrent eux aussi un salaire relativement élevé (\$11,271.00).

UNE MOYENNE DE \$20,600.00 POUR LES SPÉCIALISTES

De tous les dentistes qui ont répondu au questionnaire, 94.5 pour cent sont des omnipraticiens. Les pourcentages de spécialistes sont les suivants: orthodontistes, 2.6; chirurgiens buccaux, 1.0; périodontistes, 0.6; autres spécialistes, 1.3.

Les omnipraticiens qui consacrent tout leur temps à l'exercice privé indiquent une moyenne de revenu net de \$15,149.00; 50 pour cent d'entre eux gagnent plus de \$14,699.00. Le revenu moyen des spécialistes qui exercent à temps complet est de \$20,626.00, soit 36.2 pour cent de plus que la moyenne des omnipraticiens. Les orthodontistes ont la plus haute moyenne de revenu parmi les spécialistes, soit \$22,301.00 revenu moyen, et \$21,000.00 revenu médian. La moyenne de revenu net des périodontistes est de \$18,543.00, et la moitié d'entre eux gagnent plus de \$19,000.00. Des trois spécialités que reconnaissait l'Association dentaire canadienne en 1963, les chirurgiens buccaux gagnent le moins avec un revenu moyen de \$16,-

\$18,543, and one-half of them earned more than \$19,000. Of the three specialties recognized by the Canadian Dental Association in 1963, the oral surgeons with a mean average of \$16,697 and a median of \$15,500 earned the least.

Comparisons with the earnings of specialists in 1953 and 1958 are probably not valid because of the small sample involved. In the three surveys, the orthodontists have always occupied the position of top income earners among specialists, while oral surgeons and periodontists have alternated between the second and third places.

NET INCOMES BY TOTAL HOURS
SPENT IN PRIVATE PRACTICE

Fifty per cent of all dentists in private practice either on a full-time or a part-time basis worked more than 1,904 hours in 1963. Twenty-five per cent practised

697.00, et un revenu médian de \$15,500.00.

Il n'est pas facile de comparer les revenus des spécialistes avec les chiffres de 1953 et 1958, car le nombre de spécialistes en cause est trop petit pour que les chiffres soient exacts. Dans les trois enquêtes, les orthodontistes ont toujours occupé la position en tête de classement parmi les spécialistes, alors que les chirurgiens buccaux et les périodontistes ont alterné entre la deuxième et la troisième positions.

REVENU NET ET HEURES DE TRAVAIL

Cinquante pour cent de tous les dentistes qui exerçaient privément, à temps complet ou à temps partiel, travaillaient plus de 1,904 heures en 1963. Vingt-cinq pour cent ont exercé pendant plus de 2,162 heures et 25 pour cent moins de 1,643 heures. La majorité des praticiens, soit 80 pour cent d'entre eux, ont travaillé

Hours worked per year

Heures de travail
par année

Median net income

Revenu net médian

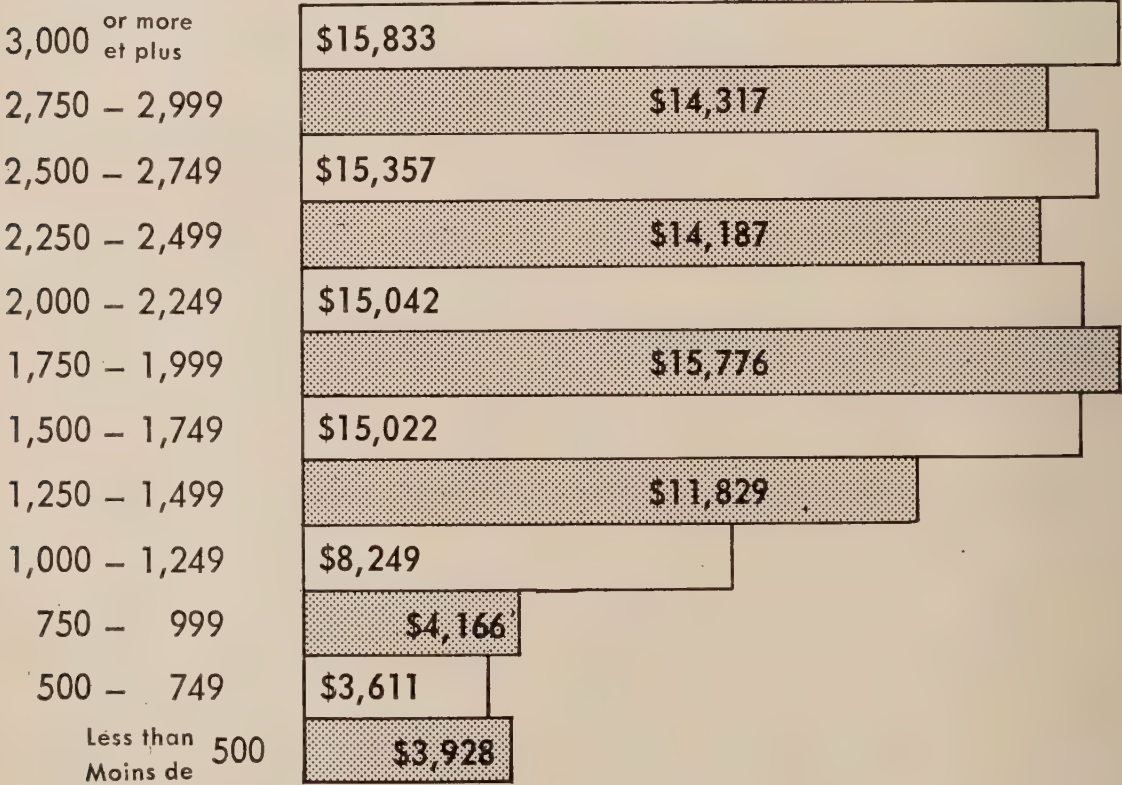


FIGURE 3 How net incomes vary with hours worked • Rapport qui existe entre le revenu net et les heures de travail.

over 2,162 hours and 25 per cent practised less than 1,643 hours. The majority of the practitioners — 80 per cent of them — worked between 1,500 and 2,500 hours in the year.

As expected, net incomes generally rise with the number of hours spent in practice. They rise very steeply until 1,500 hours a year is reached. As the number of hours increases above 1,500, however, there is little change in income, there being only a \$1,602 difference between the mean net incomes of dentists practising 1,500 to 1,749 hours (\$14,937) and those practising twice as many hours a year (\$16,539) (Figure 3).

Dentists with net incomes that were less than \$5,000 in 1963 worked a median work year of 1,412 hours. Those earning between \$5,000 and \$10,000 and those in the \$10,000 to \$15,000 income category worked 1,873 and 1,935 hours respectively. For higher income brackets, the median work years varied from 1,912 to 2,035 hours (Table 4).

This report is condensed from *Survey of Dental Practice, 1963* published by the Bureau of Economic Research.

entre 1,500 et 2,500 heures dans l'année.

Comme on peut s'y attendre, le revenu net augmente généralement avec le nombre d'heures consacrées à l'exercice de la profession. Elles augmentent de façon très marquée jusqu'à ce que l'on atteigne 1,500 heures. Lorsque ce chiffre est atteint, l'augmentation du nombre d'heures amène peu d'augmentation dans le revenu. Il n'y a que \$1,602.00 de différence entre le revenu moyen des dentistes qui travaillent de 1,500 à 1,749 heures (revenu \$14,937.00), et ceux qui pratiquent deux fois plus d'heures par année (revenu \$16,539.00) (Figure 3).

Les dentistes dont le revenu net est inférieur à \$5,000.00 en 1963 ont consacré un nombre d'heures médian de 1,412 heures à leur travail. Ceux qui ont gagné entre \$5,000.00 et \$10,000.00, et ceux qui ont gagné entre \$10,000.00 et \$15,000.00 ont travaillé 1,873 et 1,935 heures respectivement. Dans les groupes à revenu plus élevé, le nombre d'heures médian travaillées varie de 1,912 à 2,035 heures.

Ce communiqué est un résumé de l'*Enquête de 1963 sur la profession dentaire* publiée par le Bureau des recherches économiques.



Dingle Memorial Tower overlooks the North-West Arm at Halifax, site of the CDA National Convention in June. The North-West Arm has half a dozen yacht squadrons and offers ideal sailing and swimming in a sheltered scenic setting. In the tower are the coats of arms of all the British Commonwealth universities. The tower also commemorates Sir Sandford Fleming who proposed division of the earth's surface into 24 time zones.

From precedent to doctrine

One precedent creates another. They soon accumulate and constitute law. What yesterday was fact, today is doctrine. — Letters of Junius

In common with members of other professions, the dentist is under an obligation to use reasonable skill and care in treating his patients. The dentist who fails in this respect renders himself liable to be sued for damages either on the ground that he was guilty of negligence or that he was in breach of his contract with his patient, for the law ordinarily assumes that in such a contract, whatever its exact nature, there is an undertaking by the dentist to use reasonable care and skill. Most dentists are quite aware of the constancy of this principle; but as the character of practice changes with passage of time, it reappears in new and often unsuspected guise. Though not set out in any statute books, the legal duty of a dentist toward his patient is fixed by common or judge-made law. This makes it as valid as any statute law—perhaps even more so because judges, required to follow precedents set down in earlier judicial decisions within their jurisdiction, will often follow the precedents of judicial decisions in other jurisdictions as well. Dentists must therefore be eternally vigilant of new judicial rulings which could affect the practice of their profession. “Ignorance of the law excuses no man” is a maxim which has been accepted since the days of Justinian, and in modern society every citizen is expected to have knowledge of the law, despite its growing complexity, whenever he comes into contact with it.

It is appropriate, therefore, to cite three recent judicial decisions in malpractice actions brought against physicians and dentists. Harvey Sarner, secretary of the American Dental Association’s Judicial Council, has carefully analysed these cases.¹ Each illustrates an important dental-legal point but all three share a common denominator: the requirement of a dentist or physician that he act like a ‘reasonable man.’

In one case, the heart of a six year old boy stopped beating during the administration of an anaesthetic in preparation for eye surgery. The anaesthetist used oxygen and external massage without success, and then asked the ophthalmologist to open the boy’s chest for heart massage. The ophthalmologist refused saying that he was not capable. A surgeon was secured, but the boy suffered some injuries because of the delay. A subsequent jury verdict of \$406,000 was overturned by the court on the grounds that there was insufficient evidence of malpractice.

This case could be a precedent for not holding an oral surgeon and anaesthetist liable when open heart massage becomes necessary during oral surgery. If an ophthalmologist is not required to do open heart massage, it could be

argued that there is no reason why a dentist should perform this operation. This assumption could, however, be nullified if some future court should rule that it is malpractice to administer a general anaesthetic unless there is someone present who can perform open heart massage. Sarner therefore warns that the dentist should have someone available to perform thoracotomy and cardiac massage whenever he suspects that the administration of an anaesthetic could precipitate cardiac arrest.

In another case, a legal action ensued when a patient suffered a reaction to the local anaesthetic propoxycaine (Ravocaine). The judge attached great importance to the testimony of an expert witness who testified that about four per cent of patients have untoward reactions to para-aminobenzoic acid esters like propoxycaine. The court concluded that the injection is made with a calculated inherent risk of causing a reaction similar to that suffered by the patient in this case. This verdict was sustained by the Appellate Court.

The third case could be epitomized in the words of T. G. Roberts: "Change was his mistress, chance his counsellor." A dentist used lidocaine (Xylocaine) with adrenalin as a local anaesthetic. Three minutes later the patient left the room, fell and suffered a cerebral haemorrhage. The patient died three days later. He had long suffered from hypertension and was being treated for high blood pressure, a heart murmur, chronic myocarditis and obesity. The dentist claimed that he was unaware of this condition.

Evidence showed that the cause of death was attributable to the adrenalin present in the local anaesthetic. A brochure accompanying the lidocaine stated that it was prepared with and without adrenalin and claimed that lidocaine without adrenalin is "adequate in those cases where vasopressor drugs are contra-indicated." The court ruled this brochure as admissible evidence and held the dentist responsible because he should have been aware of the hazard in using the anaesthetic agent with adrenalin and should have taken a case history. The court thus held the dentist accountable for having read this printed material, even if he did not in fact read it. This, as Sarner points out, is a perfectly legitimate requirement for no dentist can claim that he acts in a reasonable manner when he administers a drug with which he is not familiar.

1. Sarner, Harvey. What the courts are saying about anesthesia. *J. Am. D. Soc. Anesthes.* 12:112, 1965.

As Others See It

A sociologist views the dental profession

Canada faces a critical shortage of dentists according to a sociology professor from Carleton University, Dr. Bruce McFarlane, who has released his findings in a study of Canadian dentistry for the Hall Commission on Health Services.

He placed Canada fourteenth in a study of 20 countries in its ratio of dentists to population. His study also showed a serious maldistribution of dentists across Canada, with British Columbia having one for every 2,406 persons compared to Newfoundland's one dentist for every 10,648 residents. Canada's national average is one dentist for every 3,108 residents.

Sweden has one dentist for every 1,500 residents, the U.S. one in 1,900, Switzerland one in 2,400 and France one in 3,000.

In Canada there are pockets of population with inadequate dental service within the provinces. For example, Ontario, the most populous and wealthy of the provinces, has rural areas with one dentist per 20,892 persons.

In suggesting steps to increase the number of Canadian dentists, Dr. McFarlane shot a barb at the attitude of professional dental associations toward dentists who come from abroad. "They suffer the indignity of being returned to the status of dental students."

He also suggests that there should be more women dentists, more auxiliary helpers to free dentists from routine work, and compulsory fluoridation of water supplies.

The dental profession will concur with the last three recommendations. But when Dr. McFarlane objects to dentists from abroad being required to take the last year at a Canadian dental school, he forgets that this is done for the protection of the public, as many of these foreign dentists do not have adequate training.

More and more we see the dental profession under the direction of sociologists and economists—not ourselves. The handwriting seems to be on the wall. Even in our own province, Victoria is converting to an IBM operation in coping with welfare patients. Each B.C. dentist has a number now.

A University of British Columbia mathematics professor says that society should not fear computers, but it should keep a close watch on the men who run them. The computer scientists deserve respect, but they are basically business men and do not have the kind of training which qualifies them to formulate policies for the professions.

D. H. Munro

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letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

Dentist's Annual Operating Hours

To the Editor:

I note in Dr. Lussier's article on dental personnel (October 1965 issue) that the Hall Commission bases its estimates on both the dental surgeon and the dental auxiliary spending 2,000 hours yearly at the chair.

This amount of operating time per year is, I believe, very much out of line. I do not believe the average operator will attain this goal. The man in his prime may attain it by working overtime. Certainly, an auxiliary will not come near it.

To obtain this accomplishment would require 50 40 hour weeks of actual operating. The auxiliary cannot be expected to be in the office more than 40 hours per week and certainly will not operate for the full 40 hours; nor should more than this be expected from the dental surgeon.

Obviously two weeks' vacation are provided, but, in most businesses and factories,

personnel with long service are allowed three and even four weeks' holidays. Armed Forces personnel get four weeks plus special holidays at Christmas and New Year.

No allowance is made for statutory holidays, sick leave, attendance at local society meetings, conventions, refresher courses and courses for professional improvement. There are other occasions when time is lost which will not necessarily apply to everyone every year. I refer here to attendance at funerals, visits to physicians, oculists, etc.

If an attempt is actually made to operate 40 hours out of the 40 hours spent in the clinic, this will be found impossible even in the most efficient clinics since there will be the inevitable broken appointment, late appointments, and concerned patients or parents who make extra demands on our time.

I would estimate that 1,500 actual operating hours per year per person might be a reasonable average in most communities, although, for reasons obvious to all practising dental surgeons, many communities would fall below this average. It would be interesting to see schedules showing 2,000 chairside hours per year for both the auxiliary and the dental surgeon.

J. M. Clarke, DDS,
192 William St., Belleville, Ont.

To the Editor:

Dr. Clarke objects to what may seem like excessive optimism on my part in the number of hours used to illustrate the manpower ratio between dentists and auxiliaries. My figures are not absolute. They were deliberately chosen to simplify calculation for the purpose of illustrating an order of magnitude rather than serve as the basis for a program.

I admit that the majority of dental practitioners do not bestow, on the average, more than 1,600 hours per year to their clientele. Even in the case of auxiliaries, 2,000 hours may seem an inflated number.

I hope that the sacrifice of accuracy for the benefit of clarity has not misled readers to the point of rejecting my interpretation and my conclusions.

J.-P. Lussier, DDS, PhD,
Dean, Faculty of Dental Surgery,
Université de Montréal.

Fees for Patient Examination

To the Editor:

More and more patients are appearing in dental offices who are covered by dental insurance plans. While some of these plans require only a brief itemization of treat-

ment rendered and the dentist's signature, there are others which request a complete charting of the mouth, indicating pre-existing conditions, etc., which are quite complicated to decipher and considerably time-consuming to fill in. It is understood that a number of provincial bodies are including a fee for such contingencies in their fee guides.

It is felt that a carefully worded, co-operatively phrased reply is required, in the interests of good public relations, rather than a brusque demand for payment of a clerical fee; but one which nevertheless clearly states the policy of the dental profession in the event of excessive or unreasonable demands from insuring agencies.

In response to a request for advice from one of our members, the attached form letter was therefore approved by the Executive

Mr.
Manager, Personnel Dept.
..... Life Insurance Company
Dear Mr.
Your company has submitted various forms and/or charts which you require to be completed for
Miss/Mr. who is my patient.

When I provide a dental service for Miss, a charge is made. Miss is entitled to know what services were rendered to which teeth, what further service was performed on her behalf and the cost of such services. This information is customarily provided for all patients.

Further itemization is not practical because dental treatment is not a series of separate technical procedures which can be added up but is the service of restoring the oral cavity to an optimum condition of health.

The additional service requested by you of charting and filling in forms is extremely time-consuming. The services by which the patient benefits are charged to the patient but this additional service which you request is of no benefit to her and so it would not be proper to charge her for it. However, if you feel that such information is helpful to you, I will be happy to supply it, with the patient's written permission.

My charge to you will be commensurate to the time involved and with respect to the forms you have submitted will be dollars (\$.....). On receipt of your cheque and the patient's written permission, I will be pleased to provide this additional service.

Yours truly,
(copy to patient) DDS

Committee of the Canadian Council for Dental Information. The Executive Committee consider that provincial or local associations may wish to adopt this form and provide copies for their members, or individual dentists may wish to utilize it, and with this in mind, I am submitting it for publication.

*Jocelyn Zuck, DDS,
1876 Weston Road, Weston, Ont.*

McFarlane Report (Cont'd.)

To the Editor:

I would like to comment briefly on that portion of Dr. Schumacher's letter (December Journal) which states that there is a need for education and certification of auxiliaries.

There are three recognized auxiliaries to the dental profession in Canada:

Dental Hygienists.—At the end of 1965 211 dental hygienists practised in Canada, providing a ratio of one practising dental hygienist to 29 dentists. This ratio was better than in 1964 when it was 1:37. The dental hygienist's services are at present preventive, educational and therapeutic, but pilot studies are being carried out in the area of extending these services within the framework of the CDA policy statement on auxiliary personnel. Registration is required in all provinces except Newfoundland. There is a strong national organization for dental hygienists.

Dental Technicians.—Seven provinces have dental technicians' regulations supported by government acts, with educational and training requirements clearly set out in five provinces. Formal courses for dental technicians are now offered in several provinces. Attempts by the CDA to assist in the establishment of a national organization for dental technicians have been unsuccessful to date. Nevertheless, the Auxiliary Services Committee is pressing forward in this direction but a national certification program is several years away from realization due to a lack of interest within the dental technician group itself.

Dental Assistants. — There has been a marked improvement in the number and calibre of formal training courses for dental assistants in the past two years, notably in Toronto, Edmonton and Vancouver. The Canadian Dental Nurses and Assistants Association is increasing in size and stature. In co-operation with the CDA Auxiliary Services Committee, CDNAA is now preparing to offer a program of certification on a national basis.

In conclusion, the CDA Auxiliary Services Committee believes that the interests of the public and the profession will best be served by developing auxiliary personnel through a distinctly Canadian program, rather than borrowing or copying proce-

dures from New Zealand, Britain or any other country.

We believe that the dental health team should include (a) the dentist as the principal person rendering service and as coordinator of the team; (b) the dental hygienist, nationally certified, and with certain of her duties possibly expanded; (c) the dental assistant, nationally certified, trained in a formal program, and maximally used by the dentist; and (d) the experienced dental laboratory technician, nationally certified, properly recognized, and upgraded in his craft.

*G. C. Swann, DDS,
Chairman, CDA Auxiliary Services
Committee.*

Temperatures in Oral Inflammation

To the Editor:

A 31 year old woman recently attended our emergency clinic of the Bronx Municipal Hospital Centre in New York to seek relief from severe diffuse pain radiating along the right side of the mouth. The patient was fatigued and appeared to be quite ill. She stated that her symptoms began a month earlier after a dentist had performed occlusal adjustment of the lower right quadrant.

Visual observation revealed intense inflammation of the gingiva and lingual mucosa of the right lower jaw extending to the floor of the mouth. Her oral hygiene was in a state of complete neglect. An initial oral temperature measurement gave a reading of 105.6° F. Believing this to be inaccurate, oral temperature was measured again with another thermometer. The second reading was 105.4° F. A rectal measurement indicated a reading 101.6° F. A third oral measurement was then made, the patient having been instructed to hold the base of the thermometer under the left side of the tongue. The third oral reading was 102.0° F.

Our diagnosis was acute gingivitis superimposed on periodontitis. Treatment included administration of analgesics to relieve pain, careful scaling, instruction in proper oral hygiene procedures and prescription of a soft nutritious diet. The patient was referred back to her own dentist. Unfortunately, we heard nothing further from the patient or her dentist.

An interesting observation from this case is that local temperature, in the presence of oral inflammation, was markedly higher than systemic temperature. Systemic temperature should therefore be recorded at a point remote from an area of localized inflammation. Temperature recordings should, moreover, be part of the diagnostic information in such patients.

*Mark Lazare, DDS,
5560 Lavoie St., Montreal, P.Que.*

National Convention

Halifax Convention Plans Unveiled

Preliminary details of the Sixty-Fifth Annual Meeting and National Convention of the Canadian Dental Association at Halifax have been announced by Convention Chairman W. B. Coleman of Armdale, Nova Scotia.

The annual meeting of the Board of Governors begins on Wednesday, June 8 at 9.30 a.m. and continues through to Saturday, June 11. Board sessions are open to all members of the CDA.

The national convention is slated for Sunday, June 12 and continues through to Wednesday, June 15.

Board sessions and major convention functions will be centered at the Nova Scotian Hotel.

Principal convention essayists are P. R. Dumke, Henry Ford Hospital, Detroit, speaking on drug therapy; C. O. Boucher, Ohio State University, whose subject is prosthodontics; and R. W. Phillips, Indiana University, an expert on dental materials. G. M. Anderson, Baltimore, will deliver the annual George Wellington Grieve Memorial Lecture. Another regular national convention feature—the CDA panel presentation — is scheduled for Tuesday afternoon, June 13.

Prosthodontists, paedodontists, oral surgeons and orthodontists are also holding meetings in Halifax. The Canadian Academy of Prosthodontists will meet at the Nova Scotian Hotel, Saturday, June 11. The Canadian Society of Oral Surgeons has scheduled a two day session for Monday and Tuesday, June 13-14, at the Nova Scotian. A three day meeting has been called by the Canadian Society of Orthodontists at the same hotel. One day meet-

ings are also scheduled on June 11 by the Canadian Academy of Endodontists and the Canadian Academy of Restorative Dentistry.



◀ P. R. Dumke



C. O. Boucher ▶



◀ R. W. Phillips



G. M. Anderson ▶

1966 NATIONAL CONVENTION

*Canadian
Dental Association*



*Nova Scotia
Dental Association*

Dear Confrère:

We urge you to plan right now to attend the 65th national convention of the Canadian Dental Association in Halifax June 12-15, 1966.

Last year's outstanding meeting in Quebec City set a new high for CDA conventions. But have you ever sampled true Maritime hospitality?

Our scientific program is studded with renowned clinical lecturers and essayists. A warm welcome and varied entertainment awaits the ladies.

Come to Halifax and join in the excitement of a national convention. Enjoy succulent ocean-fresh lobster! Make it a real family vacation! Bring the children! Tour our scenic Atlantic provinces. Take a trip on our famous 'Bluenose.'

Welcome to our city!

W. B. Coleman,
Convention Chairman.

Annual meetings are also in store for dental hygienists and assistants.

Dean J. W. Neilson of the Faculty of Dentistry, University of Manitoba, Winnipeg, will address the third annual convention of the Canadian Dental Hygienists Association June 12-15. Business sessions and table clinics are also planned. Any dental hygienist who wishes to present a table clinic is asked to contact Mrs. Anne Mitchell, 27 Lawnwood Drive, Truro, Nova Scotia.

The Canadian Dental Nurses and Assistants Association has scheduled its annual meeting for June 12-15. Program highlights include keynote speakers, table clinics, displays, business sessions, instal-

lation of new officers, and social functions.

Three luncheons are scheduled for the CDA National Convention: the Canadian Dental Association luncheon on Monday, June 12; the "City of Halifax—Nova Scotia Dental Association luncheon" on Tuesday, June 13; and the Government of Nova Scotia luncheon on Wednesday, June 14.

Social aspects have not been overlooked, either. A musical program, featuring Halifax's Jubilee Singers and a popular troubador group led by Erno Rety, will entertain delegates at a get-acquainted session on Sunday evening, June 11. A lobster shore party is slated for Monday

night, June 12. An excursion on the famous schooner 'Bluenose' will be available for those with a nautical bent. Also available will be such seasonal sports as golf, deep sea fishing and tennis. Convention proceedings will close with the ever-popular President's Banquet and Ball on Wednesday night, June 14.

Intl. College Dinner June 11

The International College of Dentists has scheduled a dinner meeting in Halifax June 11. The presiding officer will be J. P. McGuigan, 1584 Robie Street, Halifax.

Endodontic Meeting Scheduled

The Canadian Academy of Endodontists will hold its annual scientific meeting in conjunction with the CDA national convention in Halifax, June 11. The following program has been announced.

- 8:30 Registration. Non-members admitted to scientific program on payment of \$10 fee
- 9:15 R. L. de C. H. Saunders, Halifax: Lecture
- 10:30 Montreal Endodontic Society Panel discussion:
 M. B. Archambault: Endodontic emergencies and selection of cases
 Benjamin Sedlezky: Instrumentation and root filling
 W. B. Donohue: Techniques in surgical endodontics
 H. M. Robichaud: Restoration of non-vital teeth
- 1:00 R. L. de C. H. Saunders, Halifax: Lecture
- 2:15 Business session

Further information regarding the program or registration may be obtained from I. A. Arshawsky, 566 Yonge Street, Toronto, Ontario.

Canada and the Provinces

Medicare Portability Considered at Inter-provincial Parley

Provincial health ministers issued a joint statement following a Winnipeg conference November 22 where they discussed the basic coverage to be offered under the federal government's proposed medical insurance program.

The statement said the purpose of the conference was to lay the ground work for portability of health insurance schemes under which Canadians moving between provinces could continue the same basic coverage without interruption.

Ministers attending the conference stressed that the discussion did not commit their governments to participate in the national scheme, the statement added.

Exchequer Court Rules on Corporate Practice

The Exchequer Court of Canada recently considered the position of a physician in relation to a corporation purported to be set up as his employer.

According to the November 17, 1965 issue of *Canada Tax Service*, the Court ruled that the profession of medicine can only be carried on by a natural person and that the appellant was "precluded in fact and in law and as a matter of public policy from practising the profession of medicine . . . as agent of a body corporate."



Secretaries of the ten provincial corporate members met for their annual three-day conference at CDA headquarters November 29-December 1, 1965. Seen in this photo (standing l. to r.) are G. E. Decker, Alberta; R. M. LeBlanc, Quebec; K. F. Walsh (deputy for R. V. Winsor), Newfoundland; M. J. Cipton, New Brunswick; F. R. Smith, Saskatchewan; and K. F. Pownall, Ontario. Seated (l. to r.) are G. M. Dewis, Nova Scotia; W. G. Campbell, Manitoba; G. D. Barrett, Prince Edward Island; and W. R. Upton, British Columbia.

The moneys that come into the possession of a corporation under these circumstances are therefore held to have been paid to it as assignee of fees already earned by its 'employee.'

International Items

Program Set for FDI Tel Aviv Meeting

The following schedule has been announced for the 54th annual session of the FDI to be held at the Tel Aviv Hilton, Tel Aviv, Israel, July 10-17:

TUESDAY, JULY 5

9:00 Finance Committee

WEDNESDAY, JULY 6

9:00 Council A

THURSDAY, JULY 7

9:00 Council A

3:00 Commission Liaison Committee

FRIDAY, JULY 8

9:00 Commission on Classification and Statistics for Oral Conditions

9:00 Commission on Dental Research

3:00 Commission on Dental Education

3:00 Commission on Dental Practice

SATURDAY, JULY 9

9:00 Commission on Dental Materials, Instruments, Equipment and Therapeutics

9:00 Commission on Armed Forces Dental Services

9:00 Scientific Assembly Committee

3:00 Publications Committee

3:00 Subcommittee on Dental History

SUNDAY, JULY 10

9:00 Commission on Public Dental Health Services (business session)

10:30 Commission on Public Dental Health Services (open session)

9:00 Editorial Board

3:00 General Assembly A

MONDAY, JULY 11

9:00 Opening ceremony

11:00 Scientific Session

3:00 Welcome to Armed Forces

4:00 Reference committee

TUESDAY, JULY 12

9:00 Scientific Session

3:00 Commission on Dental Materials, Instruments, Equipment and Therapeutics (open session)

WEDNESDAY, JULY 13

9:00 Council B

THURSDAY, JULY 14

9:00 Scientific Session

3:00 Military Conference

FRIDAY, JULY 15

9:00 Scientific Session

3:00 Commission on Dental Practice (open session)

SATURDAY, JULY 16

9:00 National Treasurers

3:00 European Regional Organization

3:00 Commission on Armed Forces Dental Services

SUNDAY, JULY 17

9:00 General Assembly B

3:00 Council C

The scientific sessions on Monday July 11, Tuesday July 12, Thursday July 14 and Friday July 15 will be devoted to new trends in dentistry, biological considerations in relation to periodontal disease, prevention in clinical dentistry, and the biology of the tooth and its reactions. There will also be a commercial exhibit at the Tel Aviv Hilton.

Following a decision approved by the FDI annual session in Vienna last year, participation at the Tel Aviv session will be limited to FDI supporting members and their families. This means that a dentist, if not a supporting member, will have to become one when he applies to attend the Tel Aviv annual session. He will first be referred to the FDI national treasurer in Canada (W. G. McIntosh, 234 St. George Street, Toronto 5). Non-member dentists who arrive in Tel Aviv without prior notice will be asked to pay the supporting membership fee of \$16. Their membership application will then be referred to the FDI Canadian national treasurer for later approval. The FDI Council has, however, been asked to waive this restriction in the case of persons officially representing government services or international organizations.

A limited number of rooms has been retained at Tel Aviv and Herzliya hotels. These will be allocated by the organizing committee in the order of receipt of completed application forms. A deposit of Israeli £75 is requested to assure bookings.

For further information and preregistration forms please write to Isaac Seifert, general secretary, P.O. Box 4115, Tel Aviv, Israel.

Canadian Dentists Invited to Turkey

Canadian dentists have been invited to attend the Eighth National Turkish Dental Congress at Istanbul July 19-22, 1966.

A varied scientific program has been planned and there will be opportunities to visit scenic and historic landmarks in Istanbul as well as farther afield in Turkey.

Canadian dentists who would like to present clinical lectures are asked to submit their communications by May 1, 1966 to permit translation and printing.

For further information please write to M. Yavuz Elitez, secretary general, Eighth National Turkish Dental Congress, Halaskargazi C. No. 216-2, Osmanbey, Turkey.

British Dentists Win Fee Increase

New rates for dental services provided under Britain's National Health Service came into effect on September 16, 1965. The new increase in gross remuneration totals approximately 3 per cent and is equivalent to an average increase in net remuneration of 7 per cent.

The increase came after almost a year of negotiations and resulted from persistent effort on the part of the British Dental Association.

Hine Installed as ADA President

M. K. Hine, Indianapolis, was installed as president during the 106th annual session of the American Dental Association at Las Vegas November 8-11, 1965. W. A. Garrett, Atlanta, was chosen president-elect. Over 19,000 delegates attended the meeting.

The ADA House of Delegates approved by-laws and membership standards for the National Association of Dental Service Plans. The ADA had previously approved formation of NADSP at the 1964 session. The House also adopted a resolution stating "that in future negotiations with public and private agencies in relation to dental care programs, it shall be the policy of the association that reimbursement for professional services on the basis of usual and customary fees or table of allowances should be given priority consideration." In other actions, the House of Delegates:

Urged state societies to seek legislation

making fluoridation mandatory;

Directed ADA agencies to develop a national dental care program for youth; and

Again called on state and local societies to eliminate any discriminatory membership practices which may exist.

Canadian Clinicians Sought for ADA Dallas Meeting in 1966

Canadian dentists who wish to present clinical lectures, table clinics, scientific and educational exhibits and motion pictures during the 107th annual session of the American Dental Association in Dallas, Texas, November 14-17, 1966, are invited to write to the Council on Scientific Session, American Dental Association, 211 East Chicago Avenue, Chicago 60611, U.S.A. Applicants should specify the area in which participation is desired. Applications must be received by the council before May to be considered.

Occlusion Seminar in Chicago Feb. 26

The American Academy of Occlusodontia has scheduled its annual seminar for February 26, 1966 at the Conrad Hilton Hotel, Chicago.

Panelists include L. W. Boyd—functional generated path using the plane-line articulator for full dentures; J. W. Cosper—functionally developed occlusion for full mouth reconstruction; A. G. Lauritzen—use of hinge axis in obtaining functional occlusion in full denture construction; and V. O. Lucia—hinge axis approach to full mouth reconstruction with elimination of occlusal adjustments in the mouth. N. A. Shore will act as moderator.

The participation fee is \$35. For further information and registration write to F. G. Biedka, secretary, 6710 W. North Avenue, Chicago, Illinois 60635, U.S.A.

Dental Anaesthesiology Meeting in Chicago February '66

The American Dental Society of Anesthesiology will hold a scientific meeting

at the Conrad Hilton Hotel in Chicago February 27, 1966. The following topics and speakers have been announced: Anatomy as related to problems in local anaesthesia, Harry Sicher; Review and evaluation of local anaesthesia as related to clinical use, Stanley Harris; Newer general anaesthetic agents as applied to the ambulatory patient, Max Sadove; Inhalation analgesia: its role in dental practice, Alvin Solomon; Intravenous sedation: its role in dental practice, Harold Marentz.

Mr. Robert Stevens of the Bell Telephone Company will be the luncheon speaker. The topic of his address is "Light and Lasers."

The program concludes with a panel discussion beginning at 3.15 p.m.

For further information write to R. I. Weaver, secretary, American Dental Society of Anesthesiology, 500 Toledo Medical Building, 316 Michigan Street, Toledo, Ohio 43624, U.S.A.

Northwest Academy to Meet in Victoria, May '66

The Twenty-second Annual Conference of the Northwest Academy of Dental Medicine will be held at the Empress Hotel, Victoria, British Columbia, May 19-23, 1966, it has been announced.

Speakers at the sessions will include Yngve Ericsson, professor of cariology and head of the Department of Operative Dentistry, Royal School of Dentistry, Stockholm, Sweden, and H. A. Zander, head of the Department of Periodontology at the Eastman Dental Dispensary, Rochester, New York.

Further information may be obtained by writing to the secretary-treasurer, Gladys Underwood, 603 Selling Building, Portland, Oregon 97205, U.S.A.

Dental Organizations

Dr. Just Heads Northern Manitoba Assn.

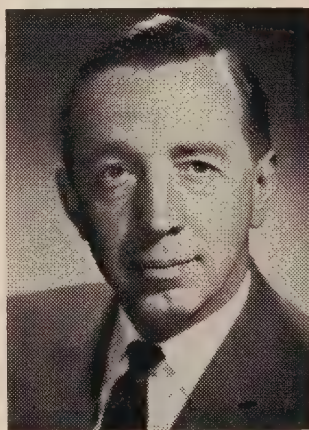
A. H. Just was named president of the Northern Manitoba Dental Society at that organization's inaugural meeting in Dau-

phin last October 25. L. F. Matthews was elected secretary-treasurer. Drs. Just and Matthews are both from Swan River. The inaugural meeting was attended by the following northern Manitoba dentists: A. D. McKee, C. S. Robertson, S. A. Heschuk, O. M. Heschuk, V. L. Watson, and D. A. Miller, all of Dauphin; J. L. King, The Pas; E. Yauck, Flin Flon; V. J. Rosnoski, Russell; and J. J. Varey, Grandview.

Winnipeg dentists W. H. Feasby, Z. Kasloff and J. E. Ryan gave scientific presentations. Their presence was sponsored by Dental Care Services of the Manitoba Department of Health.

Dr. Haryett Addresses Vancouver Group

Interceptive orthodontics was the subject of lectures given by R. D. Haryett of the University of Alberta at the November 1965 meeting of the Vancouver and District Dental Society.



J. A. Folkins, a Vancouver oral surgeon, is president of the Vancouver and District Dental Society.

At this year's VDDS meetings the lecturers are all Canadians and the head table is suitably decorated with the insignia of the province from which each speaker comes. Attendance at these meetings has improved and the membership now stands at 322.

BC Interior Convention at Vernon

R. S. Van Alstine, professor of oral surgery, University of Alberta, addressed dentists of the Interior of British Columbia at their fall convention in Vernon. Subjects covered were infections, extrac-

tion problems, impacted teeth and emergencies.

The new president of the BC Interior Society is M. J. R. Leitch, and the new secretary is D. E. A. Black, both of Kelowna.

Canadian Dental Schools

Toronto-Buffalo Research Meeting

Forty dental researchers from the University of Toronto and the State University of New York at Buffalo scored a new first in international co-operation when they met on October 26, 1965 to exchange information about their respective research projects. The site for the meeting was Vineland in Ontario's Niagara Peninsula. Both universities plan further staff exchanges for seminars.

Art Exhibit at Toronto Faculty

Seventy-six pictures by Osvald Timmas and Lillian Jenner were displayed during the annual art exhibit at the Faculty of Dentistry, University of Toronto, November 12 to December 16, 1965. Both artists make their homes in Toronto.

Work by Mr. Timmas has been exhibited extensively at the National Gallery of Canada as well as in Vancouver, Montreal, Toronto, Windsor, St. Catharines and Sarnia. His work is in numerous private collections in Sweden, Canada and the United States.

The 36 paintings displayed by Mrs. Jenner depicted people and places she has visited on five continents as well as a number of charming flower paintings.

Crown and Bridge, Surgery, Paedodontics Courses Offered by McGill U.

McGill University, Montreal, will offer three short refresher courses during the spring of 1966.

A course on crown and bridge prosthodontics for the general practitioner will be offered April 29-May 1.

Oral surgery for the general practition-

er is the title of a course to be presented May 16-18.

The third course, titled dentistry for the child patient, will be presented May 19-21.

All three courses will have limited attendance.

Further information may be obtained by writing to the office of the dean, Faculty of Dentistry, McGill University, Montreal 2, P. Quebec.

Royal Canadian Dental Corps

Corps Conference Held

The 16th annual Director General Dental Service and Unit Commanders' Conference was held at Canadian Forces Headquarters, Ottawa, November 21-24, 1965.

Vice Admiral K. L. Dyer, Chief of Personnel for the Canadian Forces, was the guest speaker at a formal mess dinner at RCAF Station Uplands, November 23, held to celebrate the 50th anniversary of the Royal Canadian Dental Corps. He reviewed the history of the RCDC and spoke generally on integration of the Forces.

Brig. Baird at Las Vegas

Brig. K. M. Baird, Director General of Dental Services for the Canadian Forces, attended the annual session of the American Dental Association at Las Vegas, November 8-12, 1965. Majors P. S. Sills and A. G. Taylor, presently stationed with the US Army Dental Corps in Washington, also represented the RCDC.

Col. Kearney Appointed Queen's Honorary Dental Surgeon

The appointment of Col. B. P. Kearney, Deputy Director General of Dental Services for the Canadian Forces, as Queen's Honorary Dental Surgeon was recently approved by Her Majesty the Queen.

Appointment as Queen's Honorary Dental Surgeon is an honour granted to selected dental officers in recognition of dis-



This picture was taken in Metz, France, at a No. 35 Field Dental Unit study group meeting on October 21 of last year. The front row includes (l. to r.) Maj. J. O. L. Bourget, Maj. W. K. Dickie, Lt.-Col. J. C. Brick, Maj. D. E. McDermott, and Maj. Y. Kamachi. In the second row are (l. to r.) Dr. E. O. Callenius, Maj. B. A. Gaudet, Maj. J. L. Craig, Capt. M. Kostyniuk and Capt. A. Van Ryssel.

tinguished service. It is held by officers of the Regular Force for "tenure of office" by officers of the Militia for a period of two years.

Three Officers Take Professional Training

Three dental officers took professional training courses during the past fall.

Maj. **A. L. Kelland**, RCAF Station, Camp Borden, Ontario, and Maj. **L. A. Reynolds**, No. 4 Field Dental Company, Germany are attending a course in basic dental sciences at the Royal College of Surgeons, London, England. The course commenced November 1 and will continue for 12 weeks.

Capt. **H. W. Brogan**, RCAF Station, Greenwood, Nova Scotia, attended a course in periodontics at the University of Michigan, Ann Arbor, Michigan, from November 29 to December 10, 1965.

Two Officers Transferred

Maj. **J. J. N. Wright** has been transferred from Walter Reed Army Medical Center, Washington, to the Training Wing at the

Royal Canadian Dental Corps School, Camp Borden, Ontario.

Capt. **J. B. Grise** has gone to Headquarters, Camp Valcartier, P. Quebec, from No. 4 Personnel Depot, Montreal.

European Study Group Meeting

Royal Canadian Dental Corps officers stationed at No. 1 Air Division RCAF, Europe, held a study group meeting at No. 35 Field Dental Unit headquarters, Metz, France, late in October 1965.

Economics

Saskatchewan Offers Aid to Attract Dentists

Dentists who want to come to Saskatchewan may now obtain provincial government loans of up to \$5,000 to establish their practice, according to the September 21, 1965 *Regina Leader Post*.

The aid is available from the provincial public health department for practices established anywhere in the province ex-

cept within a 30 mile circumference of Regina, Saskatoon and Prince Albert.

Loans must be repaid within five years. There is provision in the regulations for a reduction of the repayable loan amount at a rate of up to \$500 a year to a maximum 'forgiveness' of \$2,000.

Assistance for transportation costs to Saskatchewan of the dentist and his family is also available. This is repayable if the dentist ceases to practise in the designated areas after less than two years.

Fluoridation

Fluoride Vote Loses in Regina

Unofficial returns for the Regina fluoridation referendum on November 3 show that more than 12,000 voters approved this preventive measure.

However, opponents, 16,801 in number, apparently chose to disregard the massive evidence which has established, beyond question, the safety and efficacy of this caries control measure.

Research

Pamphlet on Canker Sores Published

Canker Sores and Other Oral Ulcerations, a new pamphlet by the National Institute of Dental Research, has been issued by the United States Public Health Service.

The illustrated pamphlet discusses four types of oral ulcerations which have a common characteristic — they recur at varying intervals during a person's life.

The most common—the fever blister or cold sore—may occur as infrequently as once a year, or as often as weekly or even

Public Health

600 Dentists to Get PH Questionnaire in February

When dentists and others speak of 'dental public health,' what do they mean? Do they all mean the same thing? Do all Canadian dental schools teach the same basic dental public health concepts? Do private dentists have anything to do with public health? If so, what? Is dental public health a special kind of service or is it any dental service paid for by the taxpayer? Where does the public health trained dentist fit in? Is his work confined to what he learned in a school of public health, or does it embrace this plus dentistry? If the latter, what is the formula? What is the goal of dental public health? Do all dentists share this goal? Can dental public health vary in different parts of Canada?

Recent and impending developments make it important for the profession to look within and beyond itself for a better understanding of dental public health. A questionnaire will therefore be sent in February by the Canadian Dental Association to a random sample of 600 dentists across Canada. This survey, to be conducted by the University of British Columbia in co-operation with the CDA and its corporate members, is financed by a national health grant with assistance from UBC and the CDA. Dentists who receive a questionnaire are asked to give the necessary 20-30 minutes' attention required to complete it. Then please return the questionnaire at once to UBC in the stamped addressed envelope that will be provided.

daily. It is caused by the herpes simplex virus, or possibly several different viruses. The disease makes its first appearance in very young children—one to three years of age.

The pamphlet states that women seem to be more susceptible to canker sores than men, and this common infection exhibits familial traits. Known medically as aphthous stomatitis, the disease causes recurring outbreaks of ulcers inside the mouth and on the lip. The cause is not known, but a bacterial agent is suspected.

Less common, but more severe, is erythema multiforme. This illness occurs more frequently in children and young adults. Blisters may appear on almost any part of the body, and the patient is generally sick. The precise cause is not known, but under suspicion are a viral or bacterial infection, vitamin deficiency and allergy.

One of the most severe, but fortunately rare, types of all ulcerations is pemphigus. It can be either acute and malignant or chronic and benign. Middle aged people, and those of certain ethnic origin, seem to be the most frequent victims. The cause is unknown.

Single copies of *Canker Sores and Other Oral Ulcerations* (PHS publication

No. 1329) can be obtained without charge from the Information Office, National Institute of Dental Research, Bethesda, Maryland, U.S.A.

Awards and Honours

During the recent annual session of the American Dental Association at Las Vegas, **P. G. Anderson** of Toronto was installed as president of the American College of Dentists.

L. M. Grose of Toronto was installed as president of the International College of Dentists-at-large on November 8. The event took place during the annual session of the American Dental Association at Las Vegas.

The Renfrew (Ontario) County Dental Society elected three senior district practitioners as honorary life members on October 20, 1965. The recipients—**M. J. Mulvihill**, Pembroke, **A. A. McPhee**, Killaloe, and **K. McDowell**, Renfrew—represent a combined total of 120 years' service to the people of Renfrew County.

Dental Hygienists of the Future • The data contained in this study suggest that the education and training of the sub-professional auxiliaries, the dental hygienists, be re-examined very critically. Either the hygienist be legally permitted to utilize her high training cost clinical skills to a much greater extent than at present (cf., the New Zealand dental nurse or the Royal Canadian Dental Corps advanced clinical technician) or her training be consigned to the technical-vocational educational system. In the first instance, her training and education is extremely costly for the very limited services which she is permitted to perform. In the second, a sizeable proportion of intelligent high school students who might ordinarily drop out may be induced to continue their education if the prospect of a promising career in the health services were made financially accessible to them. Needless to say, for either of these two programs to reach full potential the present formal and informal discrimination in the recruitment of dental hygienists on a basis of sex would have to be removed. — **B. A. McFarlane**. *Dental manpower in Canada*. Royal Commission on Health Services. Ottawa, Queen's Printer, 1964.

Congrès national

Projets pour le congrès de Halifax

Le président du congrès, W. B. Coleman d'Armdale, Nouvelle-Ecosse, a annoncé les détails préliminaires de la Soixante-cinquième assemblée annuelle et du Congrès national de l'Association dentaire canadienne, qui se tiendront à Halifax.

L'assemblée annuelle du Conseil des Gouverneurs débutera le mercredi 8 juin à 9h.30 du matin, et se poursuivra jusqu'au samedi 11 juin. Tous les membres de l'Association dentaire canadienne ont le droit d'y assister.

Le Congrès national commencera le dimanche 12 juin et se terminera le mercredi 15 juin.

Les sessions du Conseil, et les principales activités du congrès se dérouleront à l'hôtel Nova Scotian.

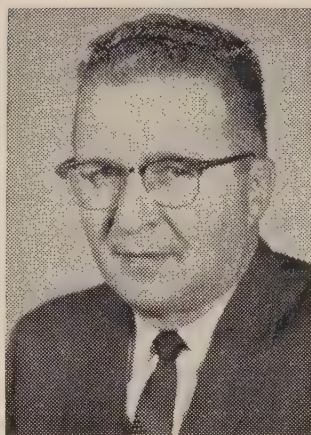
Les principaux conférenciers du congrès seront: P. R. Dumke de l'hôpital Henry Ford de Detroit, qui parlera du pouvoir thérapeutique des médicaments; C. O. Boucher, de l'Université de l'Ohio, qui discutera de prothèse dentaire; et R. W. Phillips de l'Université d'Indiana, expert en matériaux dentaires. G. M. Anderson, de Baltimore, prononcera le discours du Mémorial George Wellington Grieve. Un autre fait saillant traditionnel — la discussion par un groupe d'orateurs, membres de l'Association dentaire canadienne — aura lieu le mardi 13 juin dans l'après-midi.

Les spécialistes en prothèse et en pédo-dontie, les chirurgiens-dentistes et les orthodontistes tiendront également des réunions à Halifax. Les membres de l'Académie canadienne de prothèse se rencontreront à l'hôtel Nova Scotian le samedi

11 juin. La Société canadienne des chirurgiens buccaux a organisé une session de deux jours, lundi et mardi 13 et 14 juin au même hôtel. Une réunion de trois jours a été établie par la Société canadienne des orthodontistes, également au Nova Scotian. Enfin, l'Académie canadienne d'endodontie et l'Académie canadienne de dentisterie restaurative tiendront aussi des réunions le samedi 11 juin.

Les hygiénistes dentaires et les assistantes dentaires ont prévu leurs réunions annuelles à cette même époque.

Le Dr J. W. Neilson, doyen de la Faculté dentaire de l'Université du Mani-



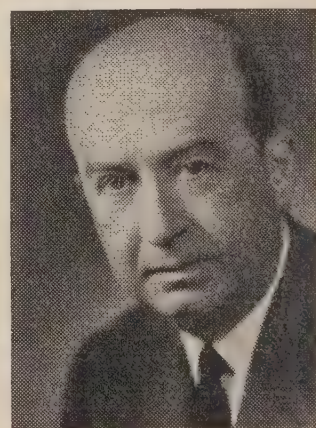
P. R. Dumke



C. O. Boucher



R. W. Phillips



G. M. Anderson

toba, à Winnipeg, prendra la parole lors du troisième Congrès annuel de l'Association canadienne des hygiénistes dentaires, qui aura lieu du 12 au 15 juin. Des sessions d'affaires et des démonstrations cliniques sont également au programme.

1966 NATIONAL CONVENTION

*Canadian
Dental Association*



*Nova Scotia
Dental Association*

Cher confrère;

Nous vous prions de faire vos plans dès maintenant pour assister au 65e Congrès national de l'Association dentaire canadienne qui aura lieu à Halifax, du 12 au 15 juin 1966.

La réception que vous nous avez accordée à Québec l'année dernière a établi un précédent qu'il nous sera difficile d'atteindre. Maintenant, c'est à vous de goûter l'hospitalité des provinces maritimes!

Soyez assurés que nous aurons d'excellents conférenciers. Les dames seront bien accueillies et on leur proposera un programme divertissant.

Venez partager avec nous le plaisir d'un congrès. Il ne sera pas nécessaire, cependant, de partager le homard frais, car il y en aura assez pour tout le monde. Profitez de cette occasion pour prendre une vacance familiale. Visitez les provinces maritimes, faites une excursion sur le fameux 'Bluenose' et profitez des plaisirs que nous vous offrons.

Vous êtes les bienvenus.

Cordialement,

W. H. Coleman,
Président du congrès.

Toute hygiéniste dentaire désireuse d'offrir une clinique est priée de s'adresser à la présidente du Congrès des Hygiénistes dentaires, Mme Anne Mitchell, 27 Lawnwood Drive, Truro, Nouvelle-Ecosse.

L'Assemblée annuelle de l'Association des infirmières et assistantes dentaires se poursuivra du 12 au 15 juin. Faits saillants du programme: conférences, démonstrations cliniques, expositions, sessions d'affaires, nomination de nouveaux membres, et activités sociales.

Trois déjeuners sont prévus au cours

du congrès national de l'ADC, celui de l'Association dentaire canadienne même, le lundi 12 juin; celui offert par la ville d'Halifax conjointement avec l'Association dentaire de la Nouvelle-Ecosse, le mardi 13 juin; et enfin celui qu'organise le gouvernement de la province, le mercredi 14 juin.

On n'a pas négligé non plus les activités sociales. Au cours de la session d'accueil les congressistes auront le plaisir d'entendre le 'Jubilee Singers Company' d'Halifax et un groupe de troubadours bien

connu, dirigé par Erno Rety, le dimanche 11 juin. On prévoit une dégustation de homard pour le lundi soir 12 juin. Ceux qui ont le pied marin pourront faire une excursion à bord du fameux schooner 'Bluenose.' Golf, pêche sous-marine, tennis et autres, seront également à la disposition des sportifs. Enfin, les activités du congrès seront couronnées par le fameux banquet et bal du président, le mercredi 14 juin.

L'Association

Le Dr McLean représente l'ADC à la réunion des ressources de la santé

Le docteur J. D. McLean de Halifax, s'est rendu récemment à Ottawa pour représenter l'Association dentaire canadienne à la réunion d'un comité technique qui doit aviser les ministres fédéral et provinciaux de la santé relativement aux allocations qui doivent provenir du fonds de \$500 millions que le gouvernement fédéral vient de créer, sous le nom de Fonds de ressources de la santé. Le comité de 21 membres comprend des représentants du gouvernement fédéral et des gouvernements provinciaux, des associations médicales et dentaires, de l'Association des infirmières et des associations d'hôpitaux, de l'Association des facultés médicales canadiennes, de l'Association des médecins de langue française, et du Conseil des recherches médicales.

C'est en septembre qu'on a décidé de former ce comité, et le Ministre de la Santé nationale et du bien-être social a demandé au président de l'Association dentaire canadienne de choisir un représentant. Le comité s'est réuni les 21 et 22 octobre 1965. De façon à être prêt pour la première séance du comité, on a fait des sondages pour connaître le point de vue des organismes dentaires provinciaux, des facultés dentaires et autres organismes.

Le Dr McLean est le doyen de la Faculté dentaire de l'Université Dalhousie, et président du Fonds canadien pour l'éducation dentaire.

Canada

Le Dr Crawford nommé sous-ministre de la Santé nationale

Après avoir assumé durant 13 ans la fonction de sous-ministre de la Santé nationale au Canada, le Dr G. D. W. Cameron a pris sa retraite le 13 septembre. Le Dr Cameron est celui qui a conservé ce poste le plus longtemps, de tous les fonctionnaires qui l'ont occupé par le passé.

C'est le Dr J. N. Crawford, jusqu'ici sous-ministre adjoint des Affaires des anciens combattants, qui lui a succédé. Originaire de Winnipeg, le Dr Crawford y a exercé sa profession de pédiatre jusqu'en 1939, alors qu'il s'enrôla dans le Corps médical de l'Armée canadienne. Il se trouva à Hong Kong en 1941 au moment de l'attaque japonaise. Libéré en 1945, le Dr Crawford décide de demeurer dans l'armée canadienne. En 1953, il accéda au grade de brigadier. Transféré au Ministère des Affaires des anciens combattants en 1956, il assumait la fonction de directeur général des services de traitement jusqu'en 1963, date à laquelle il a été nommé sous-ministre adjoint.

Chronique internationale

Les dentistes canadiens invités à participer aux voyages organisés par l'Alpha Omega à l'occasion de l'assemblée de la FDI en Israël

Le président de l'International Alpha Omega Dental Fraternity, le Dr Herbert Caplan de Montréal, invite tous les dentistes canadiens, qu'ils soient ou non membres de cet organisme, à prendre part à l'un des voyages en Israël qu'organise l'Alpha Omega en 1966.

Les voyageurs auront l'occasion d'assister à la 54ème assemblée annuelle de la Fédération dentaire internationale tenue à Tel-Aviv du 10 au 17 juillet, ainsi que de visiter le Centre de recherches et d'études post-scolaires Alpha Omega à Jérusalem.

Trois voyages sont prévus: Tour no 1 (Israël et Paris), du 9 au 21 juillet; Tour no 2 (Israël et l'Europe), du 9 juillet au 2 août; Tour no 3 (Israël et le tour du monde), du 11 juillet au 11 août. Tous les départs et toutes les arrivées se feront à New York. Toutefois, si le nombre de participants canadiens s'élevait à 40 ou plus, on pourra partir de Montréal.

Plusieurs cliniciens de marque, membres de l'Alpha Omega, donneront des conférences au cours de ces voyages. Les frais encourus seront donc déductibles de l'impôt sur le revenu.

Pour de plus amples renseignements, veuillez vous adresser au Dr Herbert Caplan, 1538 rue Sherbrooke ouest, Montréal, P. Qué.

Organismes dentaires

Dans son allocution à l'Académie torontoise, le Dr McIntosh prône l'unité de la profession

Le secrétaire de l'ADC, le Dr W. G. McIntosh, a lancé un vibrant appel en faveur de l'unité à l'intérieur d'une profession qui doit faire face à des difficultés considérables, à l'occasion du programme 'medicare.'

Prenant la parole au dîner annuel de l'Académie torontoise de dentisterie le 28 octobre, le Dr McIntosh a rappelé à ses auditeurs qu'il ne faut pas croire que le rapport Hall est une chose du passé. "Ce serait une erreur tragique et une illusion dangereuse," a-t-il dit.

On fait encore beaucoup de pressions politiques en faveur d'un programme national de soins médicaux et dentaires. Le Dr McIntosh a cité les faits suivants à titre d'exemples:

Le Premier Ministre a reçu plus de 16,000 lettres et autres requêtes individuelles en faveur d'un plan médical universel;

Le gouvernement de la Saskatchewan considère la possibilité d'employer sa part de l'octroi fédéral 'medicare' de \$14 per capita dans le but d'instituer un programme provincial de soins dentaires;

Du 28 novembre au 1er décembre 1965, il y avait, à Ottawa, une conférence au cours de laquelle les représentants de 13 millions de citoyens ont discuté de la façon dont on pourrait mettre en vigueur la Charte de santé des Canadiens que prévoit la Commission Hall.

Le Dr McIntosh a proposé que l'on emploie l'accalmie actuelle pour exposer au public et aux politiciens les opinions et points de vue auxquels nous croyons sincèrement.

La profession, ajoute-t-il, vient d'acquiescer deux nouveaux moyens de communication pour faire connaître ses opinions au gouvernement fédéral. Il s'agit du Comité consultatif sur la santé dentaire, qui assiste et conseille le Ministre de la Santé nationale et du bien-être social, et le Sous-comité de recherches dentaires qui doit faire rapport au Comité consultatif des recherches en hygiène publique du Conseil fédéral de la santé.

Cependant, quelle que soit la valeur des représentations faites au niveau fédéral par l'ADC, le docteur McIntosh fait remarquer qu'il est également important que les associations provinciales et locales fassent connaître leurs points de vue à leurs niveaux respectifs.

Le Dr Henri Gamache président de la Société dentaire de la Rive-Sud

La Société dentaire de la Rive-Sud, groupant des dentistes de la Beauce, du Bas St-Laurent, de la Gaspésie et de la Côte Nord, a tenu son congrès annuel le 17 septembre dernier à Rimouski.

Le docteur Lomer Lemieux, du Ministère de la santé de la province de Québec, a exposé les grandes lignes du programme d'hygiène dentaire publique de son département. Le docteur Gérard Lussier présenta une conférence sur l'endodontie, alors que le docteur Gilles Bédard, directeur médical de l'hôpital Saint-Joseph de Rimouski, parla du dentiste et des problèmes hospitaliers.

Les membres du nouvel exécutif élus à ce moment sont: Dr Henri Gamache, président; Dr Roger Labrie, 1er vice-président; Dr Louis-Philippe Pelchat, 2e

vice-président; Dr Paul Lafrance, secrétaire-trésorier. Les docteurs Marcel Faucher et Roland Giguère sont direc-

teurs, alors que le Dr Gaston Beaulieu, président sortant de charge, demeure membre de l'exécutif.

Facultés dentaires canadiennes

Changements à la Faculté de chirurgie dentaire à l'Université de Montréal

La création de six départements à la Faculté de chirurgie dentaire de l'Université de Montréal est une mesure essentiellement administrative. Les différentes sections que l'on appelait souvent à tort départements, continueront d'exister dans les cadres de leurs départements respectifs.

Les services de pédodontie, de radiologie, de diagnostic et de couronnes et ponts continuent d'exister. Les docteurs J.-Georges Perreault, Jean-Noël Fontaine

et Médéric Robichaud, au lieu de relever de l'autorité du doyen, relèveront maintenant de l'autorité administrative, de certains de leurs confrères qui étaient auparavant leurs égaux en titres et en fonctions.

On remarque que le doyen, le vice-doyen et le secrétaire de la Faculté assumeront chacun la charge d'un département. Le docteur Jean-Paul Lussier qui cumulait déjà les charges de doyen et de directeur des études, assumera la responsabilité additionnelle de chef du département de dentisterie préventive.

Départementalisation à la Faculté de chirurgie dentaire de Montréal

La Faculté de chirurgie dentaire de l'Université de Montréal, par une décision du Conseil des Gouverneurs en date du 28 juin 1965, comprend maintenant six départements. Ce sont les départements de Biologie dentaire, Dentisterie préventive, Dentisterie de restauration, Orthodontie, Prosthodontie et Stomatologie.

Le département de Biologie dentaire devient responsable de l'enseignement des sciences de base et des disciplines pré-cliniques ainsi que de la recherche fondamentale en dentisterie.

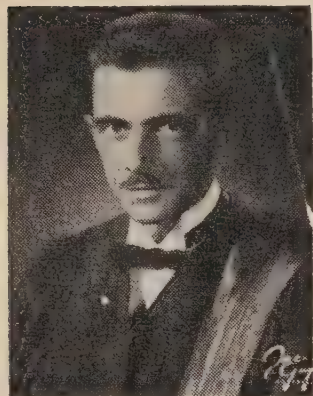
Le département de Dentisterie préventive assume la responsabilité de l'enseignement de la dentisterie préventive et de son intégration à tous les aspects de la pratique de la dentisterie. Il a aussi charge des programmes en pédodontie, en hygiène dentaire publique, en dentisterie sociale et à tout ce qui touche à la formation morale du professionnel.

Le département de Stomatologie assure l'enseignement de la médecine et de la chirurgie buccale et de toutes les disciplines qui s'y rattachent telles l'anesthésiologie, le diagnostic, l'endodontie, la périodontie et la radiologie. Les départements de Dentisterie de restauration, Orthodontie et Prosthodontie continuent dans leurs domaines respectifs à assurer l'enseignement pré-clinique et clinique dans le programme régulier et au niveau postgradué.

Les professeurs de la faculté nommés au poste de directeurs sont J.-P. Lussier: Dentisterie préventive; G. de Montigny: Stomatologie; H. Deschênes: Dentisterie de restauration; Z. Mézl: Biologie dentaire; J. Nadeau: Prosthodontie; C. Baril: Orthodontie.



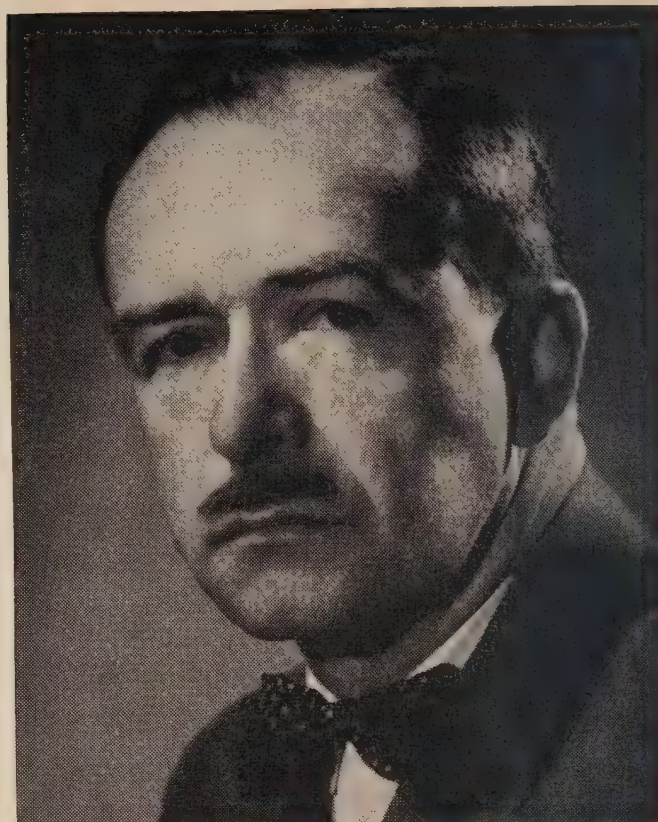
Gérard de Montigny



Claude Baril



Hervé Deschênes



J.-P. Lussier



Zdenek Mézl



Jean Nadeau

Le docteur Gérard de Montigny, vice-doyen, qui a exercé à titre d'omnipraticien pendant de nombreuses années et a obtenu son certificat de spécialiste en chirurgie buccale en 1963, à peu près au moment où il a choisi de consacrer tout son temps à des fonctions académiques, sera responsable non seulement de la chirurgie, mais aussi de l'anesthésiologie, du diagnostic, de la radiologie, de l'endodontie et de la périodontie.

Le docteur G. H. Deschênes, secrétaire de la Faculté, qui était chef de dentisterie opératoire, verra son département prendre le nom de département de dentisterie restaurative.

Le docteur Jean-Claude Durand, après des études postsecondaires à New York, avait été engagé à temps complet pour enseigner la périodontie. Il consacre maintenant la plus grande partie de son temps à l'exercice privé et est devenu professeur à temps partiel.

Ayant déjà perdu plusieurs professeurs de périodontie par le passé, la Faculté dentaire de l'Université de Montréal prend toutes les mesures nécessaires pour renouveler son personnel enseignant.

La Faculté de Western Ontario recevra ses premiers étudiants en 1966

Les premiers étudiants entreront à la Faculté dentaire de Western Ontario en septembre 1966. Le groupe pilote de huit étudiants commencera ses études dentaires dans l'édifice des sciences médicales; au besoin, on pourra aussi les loger dans des locaux temporaires.

On amorcera en mars 1966 la construction de l'édifice des sciences dentaires de cette université. La construction coûtera environ \$5 millions et devrait prendre 18 mois. Cet édifice fera partie du centre des sciences de la santé, qui comprendra aussi

l'édifice des sciences médicales et l'hôpital universitaire que l'on projette déjà de construire.

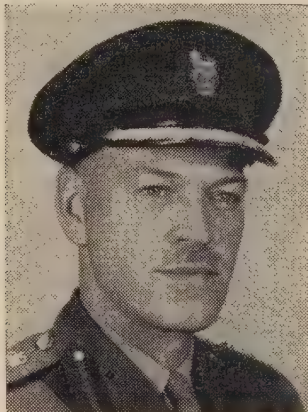
Pour entrer à la faculté dentaire de l'Université Western Ontario, il faut avoir suivi pendant deux ans le cours général de sciences de cette université, ou l'équivalent.

Corps dentaire royal canadien

Retraites du colonel Millar et du lieutenant-colonel Brown

Deux officiers dentaires senior du Corps dentaire royal canadien ont pris leur retraite.

Le colonel I. A. L. Millar, assistant directeur général des Services dentaires des forces armées, a pris sa retraite en septembre. Né à Matapédia (P.Qué.), le colonel Millar a reçu son diplôme de l'Université Dalhousie en 1938, et exercé sa profession à Liverpool (Nouvelle-Ecosse). Lieutenant dans le Corps dentaire canadien en 1939,



Col. I. A. L. Millar

il a été envoyé à titre de capitaine au Royaume Uni en septembre 1941. Il a participé au débarquement du 6 juin 1944 à titre d'officier dentaire avec la 14e Ambulance de campagne canadienne. Revenu au Canada avec le grade de major en septembre 1945, le colonel Millar s'est enrôlé dans l'armée active canadienne, et a servi dans l'est du Canada jusqu'à ce qu'il soit assigné au H.M.C.S. Naden sur la côte ouest en mars 1947.

Le colonel Millar a été successivement clinicien puis commandant à l'Ecole du Corps dentaire royal canadien; spécialiste senior à la 13e Compagnie dentaire; officier de la 27e Unité dentaire de campagne; et officier dentaire au Western Command. De juin 1963 jusqu'à sa retraite, il a été assistant directeur général des services dentaires. Le colonel Millar a reçu la décoration des Forces canadiennes, et a reçu le titre de dentiste honoraire de la reine. Il est membre du International College of Dentists.

Le colonel Millar a maintenant été nommé officier dentaire en chef à la Commission des écoles primaires d'Ottawa.

Le lieutenant-colonel R. E. Brown, gradué de l'Université de Toronto, a pris sa retraite après 23 ans de service militaire ininterrompu.

Il a servi à plusieurs endroits à travers le Canada et a voyagé outre-mer avec l'Unité dentaire de campagne no 20 en Corée, et l'Unité dentaire de campagne no 1 de la Brigade canadienne en Allemagne. Le dernier poste qu'il a occupé a été celui de clinicien senior au centre de traitement de l'Ecole du C.D.R.C. au Camp Borden en Ontario. Il sera maintenant officier dentaire au Service civil à London (Ontario).

Promotion du colonel Craigie

Les quartiers généraux des Forces armées canadiennes ont récemment annoncé que le lieutenant-colonel L. G. Craigie était promu colonel. Né à Kamsack (Saskatchewan), le colonel Craigie termine ses études à l'Université de Toronto en 1943. Jusqu'en 1946, il fait partie du Corps dentaire royal canadien et y occupe différents postes. Il s'installe alors en pratique privée pour revenir avec le Corps dentaire en 1948. En 1956, il devient membre du personnel enseignant de l'Ecole du Corps dentaire au Camp Borden (Ontario), où il demeure cinq ans. Nommé commandant de la 35ème Unité dentaire de campagne en Europe en 1961, il revient au Canada en 1964 et entre au département de la Direction des services dentaires à Ottawa. Il est maintenant consultant senior du Corps dentaire royal canadien.

Promotion de cinq officiers

Le quartier général des Forces armées du Canada vient d'annoncer la promotion de plusieurs officiers du Corps dentaire royal canadien:

Le lieutenant-colonel **C. M. Cornish**, officier dentaire de la région de Québec, et commandant de la 15^{ème} Compagnie dentaire, à Montréal, est promu au grade de colonel;

Le major **W. H. Carter**, commandant du 1^{er} détachement dentaire, à Ottawa, devient lieutenant-colonel;

Le major **J. M. Smith**, du quartier général de la région de Western Ontario, à London, Ontario, devient lieutenant-colonel;

Le capitaine **E. W. Gazo**, du 1^{er} détachement dentaire, à Ottawa, devient major;

Le capitaine **P. P. Morin**, de la 4^{ème} Compagnie dentaire de campagne, en Allemagne, devient major.

Huit officiers suivent des cours de perfectionnement

Huit officiers dentaires ont suivi des cours de perfectionnement cet automne.

Le lieutenant-colonel **L. R. Pierce**, H.M.C.S. Naden, Esquimaux (Colombie britannique), a suivi un cours de périodontie à l'Ecole dentaire de la marine américaine à Bethesda, Maryland, du 27 septembre au 12 novembre.

Les majors **C. Brown** des quartiers généraux de la 14^e Compagnie dentaire à Winnipeg, et **J. J. Walker**, de la Caserne Currie à Calgary, ont suivi des cours en prothèses complètes et en couronnes et ponts à l'Université de Michigan à Ann Arbor (Michigan), des 13 aux 24 septembre.

Les officiers dentaires suivants ont suivi un cours de perfectionnement à l'Ecole du C.D.R.C. du Camp Borden en Ontario, du 13 septembre au 22 octobre: les capitaines **N. H. Andrews**, base du C.A.R.C. de Portage La Prairie (Manitoba); **M. N. Deyette**, quartiers généraux, Western Ontario Area, London (Ontario); **J. F. A. Marcil**, Collège Militaire Royal, St-Jean (P. Qué.); **N. A. McFarlane**, 4^e Compagnie dentaire

de campagne, Allemagne; **W. E. Russell**, base du C.A.R.C. de St-Jean (P. Qué.).

Trois officiers ont suivi des cours spéciaux en octobre

Le major **H. K. Meisner** de Fort Churchill au Manitoba a suivi un cours de chirurgie buccale à la base aérienne Ent à Colorado Springs, Colorado;

Le major **J. L. M. Masse** des quartiers généraux du camp Valcartier, P.Qué., a suivi un cours de prothèse partielle à l'école dentaire de la Marine américaine à Bethesda, au Maryland;

Le capitaine **L. Dombowsky** de la base aérienne du CARC à Chatham, Nouveau-Brunswick, a suivi un cours de pathologie buccale à l'école dentaire de la Marine américaine à Bethesda, au Maryland.

Les capitaines Paturel et McFarlane en Europe

Les capitaines **R. J. Paturel** de l'établissement Shearwater, à Dartmouth (Nouvelle-Ecosse), et **N. A. McFarlane**, du 6^{ème} Dépôt de réparation à la base aérienne de Trenton (Ontario), ont été nommés à la 4^{ème} Compagnie dentaire de campagne du 4^{ème} Groupe de brigade d'infanterie canadienne en Europe.

Mutation de quatre officiers

Le quartier général des Forces canadiennes vient d'annoncer les mutations suivantes.

Le capitaine **L. T. F. B. Archambault**, du HMCS Cornwallis, à Cornwallis, Nouvelle-Ecosse, travaillera maintenant aux quartiers généraux du camp Valcartier, P.Qué.;

Le capitaine **H. Griesbach**, du quartier général du camp Petawawa en Ontario, devra rejoindre le contingent canadien des Nations unies à Chypre;

Le capitaine **J. B. Thompson**, du 1^{er} dépôt du personnel, à Halifax, se rendra au HMCS Cornwallis en Nouvelle-Ecosse;

Le capitaine **P. S. Wade**, du contingent canadien des Nations unies à Chypre, se rendra au 1^{er} détachement du Queen's

Own Rifles du Canada, à Esquimalt, Colombie britannique.

Le capitaine Kyle assigné à Cold Lake (Alberta)

Le capitaine W. R. Kyle devra quitter la base du C.A.R.C. de Trenton en Ontario pour aller servir à la base du C.A.R.C. de Cold Lake en Alberta.

Economie

La Saskatchewan offre une aide financière aux dentistes

Le Regina *Leader Post* du 21 septembre 1965 fait savoir que les dentistes qui veulent venir s'établir en Saskatchewan peuvent maintenant obtenir des prêts du gouvernement jusqu'à concurrence de \$5,000 de façon à défrayer le coût d'installation de leurs bureaux.

C'est le département provincial de la santé publique qui offre ces subventions. Elles sont disponibles à condition que le dentiste ne cherche pas à s'installer dans un rayon de 30 milles de Regina, Saskatoon ou Prince-Albert.

Les prêts doivent être remboursés en cinq ans. Le règlement comporte cependant des clauses qui permettent d'en réduire le montant d'une façon appréciable.

Le gouvernement de la Saskatchewan offre aussi de défrayer les frais de transport du dentiste et de sa famille. On exigera cependant le remboursement de ces frais si le dentiste cesse d'exercer à l'endroit choisi dans une limite de deux ans.

Une personne sur cinq fait usage des services de l'Alberta Pensioners' Dental Service

Les statistiques les plus récentes de l'Alberta Pensioners' Dental Treatment Service démontrent qu'en 1964, 65,449 retraités et personnes à charge, avaient droit à ses services. Parmi ceux-ci, 14,462 (22.1

pour cent) en ont tiré parti. Le prix de revient des soins était de \$25.11 par personne, soit un total de \$363,091.00.

Le taux d'utilisation semble s'être maintenu à un niveau relativement constant à travers les années. Près de la moitié des personnes ayant droit à ces services sont âgées de 60 ans et plus. Seul 8.9 pour cent d'entre elles ont accepté d'en faire usage. Si les chiffres établis pour ce groupe sont omis dans les calculs, la moyenne d'utilisation s'élèverait aussitôt à 35.1 pour cent pour le reste des groupes.

L'AMA s'oppose au boycottage d'un plan 'medicare'

La Chambre des délégués de l'American Medical Association vient de s'opposer sans équivoque à des projets visant à boycotter le programme de soins médicaux du gouvernement. Les délégués ont par ailleurs approuvé des résolutions autorisant les médecins membres de l'AMA à refuser individuellement de participer au programme, à condition de ne pas aller à l'encontre des obligations morales qu'ils ont envers leurs patients. La Chambre des délégués de l'AMA ré-affirmait ainsi la position qu'elle avait déjà prise, à sa réunion de juin, à New York.

Fluoration

Echec de plébiscites pro-fluoration

Les référendums pro-fluoration tenus dans trois villes du sud de l'Alberta n'ont pas obtenu les deux tiers des votes dont ils ont besoin pour réussir. C'était la troisième fois qu'un tel plébiscite échouait à Taber et à Lethbridge.

Ayant déjà refusé d'approuver une telle mesure il y a deux ans, les contribuables de Brooks ont donné 62 pour cent de leurs votes à la fluoration, ce qui demeure tout de même insuffisant pour permettre l'approbation de la mesure. A Taber, 59 pour cent ont voté en faveur de la fluoration. A Lethbridge, le vote a été de 4,167 en faveur de la fluoration et 3,319 contre.

A la suite du retrait d'une cause type, l'Angleterre reprend sa campagne de fluoration

Une période d'attente de deux ans vient de se terminer en Angleterre à la suite de l'abandon d'une poursuite judiciaire anti-fluoruration. La poursuite judiciaire avait été intentée par un résident de Watford dans le but d'empêcher la fluoruration dans cette ville. Cette procédure judiciaire recevait l'appui de la National Pure Water Association, un groupe anti-fluor.

Cette cause type a été affaiblie par la perte d'une cause identique à Lower Hutt, en Nouvelle-Zélande. La cause néo-zélandaise a été poussée jusqu'au Conseil Privé britannique qui a donné droit à l'autorité locale de fluorer l'eau de l'aqueduc.

Ayant ainsi disposé des objections légales, le Ministère de la santé britannique a repris sa campagne de fluoruration en envoyant des circulaires à toutes les autorités locales, leur recommandant d'agir le plus vite possible. La fluoruration bénéficie du support du Ministère de même que de celui des associations médicales et dentaires britanniques.

C'est aux autorités locales qu'il revient de décider s'il y a lieu de fluorer l'eau de l'aqueduc. La situation se complique cependant de ce que certains aqueducs dépendent de plusieurs autorités de santé publique différentes.

Ainsi le Conseil de Londres a fait connaître à la Commission métropolitaine des eaux son approbation de la fluoruration. Cette commission dessert plus de 6 millions de consommateurs, dont un bon nombre de résidents des comtés avoisinants qui dépendent d'autres autorités locales. Certaines d'entre elles se refusent encore à approuver la fluoruration de crainte de problèmes financiers ou judiciaires.

La fluoration garantie par le gouvernement britannique

Dans une circulaire adressée à tous les départements de santé en Angleterre, le Ministère de la Santé britannique affirme être "prêt à indemniser toute autorité locale de santé ou toute corporation administrant un aqueduc en Angleterre ou

au pays de Galles, en cas de poursuite judiciaire pour abus de pouvoir ou dommage à la santé . . ." résultants de la fluoruration. Le Ministère encourage toutes les autorités locales de santé d'Angleterre à fluorer leur eau car, à son avis, la fluoruration est "maintenant une mesure de santé publique reconnue."

On promet de payer les frais ou les dommages dont l'autorité locale de santé pourrait être tenue responsable à la suite de dommages causés à la santé par la fluoruration, à condition qu'il n'y ait pas négligence de la part du département local de santé.

On paiera aussi les frais encourus pour l'entretien de l'équipement de fluoruration, si des procédures légales devaient empêcher le département local de santé de procéder à la fluoruration.

L'Acte de Santé nationale britannique de 1946, tel qu'il a été amendé en 1963, place la responsabilité de la fluoruration au niveau des départements locaux de santé.

Palmarès

Rectification: Dr Ernest Charron

Dans la livraison de septembre 1965 du Journal, nous annoncions à nos lecteurs que le docteur Ernest Charron avait été nommé doyen honoraire de la Faculté de chirurgie dentaire de l'Université de Montréal.

Nous avons depuis appris que le titre de doyen honoraire a été décerné au docteur Charron il y a de nombreuses années. Le titre que cet ancien doyen de la Faculté de chirurgie dentaire a reçu le 6 mai dernier, est le titre de doyen émérite. Il s'agit là d'un honneur tout à fait particulier, puisque c'est la première fois que l'Université de Montréal décerne le titre de doyen émérite à l'un de ceux qui ont servi au poste de doyen dans ses diverses facultés.

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November 30, 1965

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Fonds d'obligations corporatives	875,661.19	858,412.12	14.401
Fonds d'actions ordinaires	2,652,594.76	3,077,575.61	19.633
	<u>\$4,048,255.54</u>	<u>\$4,452,495.41</u>	

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External cardiac massage

W. J. Evon, DDS, Toronto, Ontario

External cardiac compression combined with adequate ventilation will maintain vital organs for a considerable time until normal circulation can be re-established. Complications can be minimized by application of the proper technique, and the most common complication, rib fracture, is not detrimental to safe resuscitation. Open chest massage is contra-indicated in the presence of internal bleeding wounds of the thorax and tension pneumothorax. It is safe and effective to defibrillate a heart externally even if electrocardiographic evidence of fibrillation is lacking. The prompt use of cardiogenic (adrenalin) and antacid (sodium bicarbonate) drugs contributes to the rapid resumption of cardiac action.

La compression externe du coeur accompagnée de ventilation adéquate des poumons peut maintenir la vie pour des périodes de temps assez longues, jusqu'au rétablissement de la circulation normale. Au moyen de techniques appropriées, il est possible de réduire au minimum les complications. La complication la plus courante, la fracture des côtes, n'empêche pas la résurrection. Cependant, le massage direct du coeur est contre-indiqué en présence de blessures du thorax qui produisent des hémorragies internes, et en présence de pneumothorax. Il est bon et efficace de pratiquer la défibrillation externe du coeur, même en l'absence d'évidence électrocardiographique de fibrillation. L'emploi à bon escient de médicaments cardiogéniques (adrénaline) et antacides (bicarbonate de soude) contribue à la reprise rapide de la fonction cardiaque.

It is prudent for medical and dental practitioners to examine their results frequently and modify their techniques accordingly. For this reason the technique of external cardiac massage has under-

gone several analyses since its inception at the Johns Hopkins Hospital approximately five years ago. The staff at Johns Hopkins have been satisfied that it is a good technique which compares favoura-

bly with any other cardiac resuscitation methods. Nearly five years have now elapsed since the publication of the method of external cardiac massage by Kouwenhoven and associates,^{1,2} and it is well to examine the results of others to escape any biased conclusions.

Unfortunately the treatment of cardiac arrest is not easily subjected to controlled experimentation or observation. As with many clinical entities, one hears mostly of the good results and only rarely of failures. Furthermore, a failure in cardiac resuscitation is difficult to assess since there is no way of predetermining which patients undergoing resuscitation are salvable. Therefore we are left with the judgement of competent observers to answer the question: Does the technique work?

There is now ample experimental evidence that closed chest cardiac massage moves enough blood to keep an animal in cardiac arrest alive for over 30 minutes.³ Similarly, the closed technique can keep a person alive in the 'grey' area for 60 minutes. It has also been demonstrated that closed chest massage is comparable to open chest or direct cardiac massage in this respect.

A fair and frequent question asked is whether or not the heart was in arrest when massage was instituted. This can usually be ascertained in the open chest method. In the closed technique, this is not always the case and it would probably be better to use the term, 'circulatory arrest,' in which three conditions amenable to external cardiac massage may be present: asystole, ventricular fibrillation, or cardiac output inadequate to sustain life. Most of the reports do not state whether electrocardiographic evidence of cardiac arrest was obtained, but all note the absence of pulse, dilated pupils, or apnoea, which are significant signs of circulatory arrest. It therefore cannot be argued that all successful cases had cardiac arrest and one is forced to use the definition of circulatory arrest to describe the state of most of the patients listed in many of the reports. Baringer and co-workers⁴ did note that 18 of their patients had ventricular fibrillation and of these, 10 were successfully defibrillated.

It should also be pointed out that

Baringer reported on all cases wherein external massage was used, irrespective of the patient's underlying illness. The simplicity of the technique led him to utilize it in several hopeless cases, and this resulted in a number of failures. On the other hand, nearly all of the other reported cases had a high potential of salvability. This probably accounts for the wide discrepancy between Baringer's report and those of others.

If one accepts the definition of circulatory arrest as an indication for external cardiac massage, it seems fair to conclude from these admittedly clinical results that it is a workable technique. When properly utilized in a salvable patient external cardiac massage will give as good a result as might be expected by open chest massage. Again, it must be emphasized that there is no fair method of comparing the two techniques, in spite of the occasional reports of better pulses obtained with one versus the other.

There are some factors, however, which weigh in favour of the closed technique: (1) it can be begun immediately without waiting for equipment or overcoming the reluctance to open the thorax; (2) it can be applied by those not surgically oriented or by surgeons without a knife; (3) it can be applied without regard to time or place, whereas the open technique is best carried out in a hospital or in a place equipped to handle retraction, haemostasis, and the pneumothorax.

COMPLICATIONS

Any method which distorts the normal anatomy of the chest as does external cardiac massage will have its share of complications. However, as rescuers become more experienced, the number of complications drop.

Most of the complications have been caused by inaccurate placement of the hands and the use of excessive force. The heel of the hand only should make contact with the lower third of the sternum and only in the centre. This allows the rib cage to bend evenly and minimizes the strains which produce rib fractures. Obviously, misplaced pressure may easily

fracture ribs or place undue pressure over the liver.

The amount of force necessary cannot be precisely stated because it must be individualized. It is safe to say that only enough pressure should be exerted to cause a good femoral or carotid pulse. The force stroke should be made smoothly downward and the hand should be kept in contact with the sternum all the time to minimize the inertial effects on the rib cage by the hand suddenly striking the sternum.

Admittedly, all complications cannot be avoided. There are patients who receive costochondral separation or rib fractures in spite of great attention to these details. However, it may be said that rib fractures have not caused any serious difficulties either during resuscitation or in recovery after resuscitation, and the disadvantages imposed by these complications are greatly outweighed by the facility of this technique of resuscitation.

CONTRA-INDICATIONS

Experience has delineated two situations where external massage is contraindicated. The first is where chest wounds make intrathoracic bleeding a definite possibility. Open chest massage should be instituted in this situation. The second is where a tension pneumothorax is suspected. The movement provoked by external massage may aggravate a tension pneumothorax. As in the first situation open chest massage should be instituted.

OBSERVATIONS

It has become apparent that educators have failed to impress the importance of ventilation upon the would-be rescuers. It has been substantiated by Safar and Holtey⁵ that pulmonary ventilation is not adequate during external cardiac massage and that artificial respiration must be carried out by whatever means are available. Pulmonary ventilation is frequently overlooked or improperly done during the excitement of the moment. External massage is actually more easily accomplished

than ventilation. It is vital that, during the teaching of external cardiac massage, the proper emphasis be placed on the importance and methods of ventilation.

A second observation is that although an electrocardiogram is of great help in ascertaining whether fibrillation is present, it is not essential. If a heartbeat does not return with five or six minutes of effective massage and proper drug therapy, it has been a practice to assume that ventricular fibrillation is present and to proceed to do external defibrillation. A defibrillating current of five amperes at 440 volts will not affect a beating heart except to stop it for a few seconds, whereas it will stop a fibrillating heart. It is the feeling that while waiting for an electrocardiographic machine, it is better to attempt to get the heart beating again as soon as possible. Of course, if an electrocardiographic machine is shortly available, good judgement would suggest waiting for a proper diagnosis before defibrillating.

A third observation concerns drugs. Early in the use of closed chest massage there was a reluctance to use cardiotonic drugs until it became very obvious that the resuscitation was not going well. A much more aggressive approach to drug therapy is in order. This is especially true in the use of adrenalin and sodium bicarbonate. Unless the heartbeat comes back within a matter of minutes, intracardiac adrenalin should be used. There is a risk of throwing a poorly oxygenated heart into fibrillation but this is not usual. It is more likely to give the heart the extra impetus that it needs to get a good start and maintain itself. Furthermore, if the heart does fibrillate, experience has shown that it is much easier to defibrillate following adrenalin stimulation.

Acidosis, present in practically every resuscitation, is detrimental to heart efficiency. To combat acidosis the frequent intravenous injection of 50 ml. of sodium bicarbonate (44.6 m. Eq.) in the average adult improves the effect of massage and enhances the action of adrenalin and calcium. The routine at present is to give 50 ml. intravenously as soon as possible after massage has been started and repeat every 5-10 minutes thereafter.

SUMMARY

External cardiac compression combined with adequate ventilation will maintain vital organs for a considerable time until normal circulation can be re-established.

External cardiac compression has some special advantages over the open chest method.

Serious complications can be minimized by proper technique, and the most common complication, rib fracture, is not detrimental to safe resuscitation.

In the presence of internal bleeding wounds of the thorax and tension pneumothorax, open chest massage is indicated.

In the training of others in external cardiac massage, the importance and the technique of adequate ventilation must be stressed.

It is safe and effective to defibrillate a heart externally even if electrocardiographic evidence of fibrillation is lacking.

The prompt use of cardiotonic and anti-acid drugs contributes to the rapid resumption of cardiac action.

1. Jude, J. R., Kouwenhoven, W. B. and Knickerbocker, G. G. External cardiac resuscitation. Monographs in the Surgical Sciences, Vol. 1, No. 1, March 1964.
2. Kouwenhoven, W. B., Jude, J. R. and Knickerbocker, G. G. Closed-chest cardiac massage. J.A.M.A. 173:1064, 1960.
3. Jude, J. R., Kouwenhoven, W. B. and Knickerbocker, G. G. Clinical and experimental application of a new treatment for cardiac arrest. Surg. Forum 11:252, 1960.
4. Baringer, J. R., Salzman, E. W., Jones, W. A. and Friedlich, A. L. External cardiac massage. New England J. Med. 265:62 July 13, 1961.
5. Safar, Peter and Holtey, William. Need for ventilation during closed chest cardiac massage. In: Current comment. Stuart C. Cullen, ed. Anesthesiology 22:636, 1961.

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Availability of dental service in an urban community

W. H. Feasby,* DDS, Winnipeg, Manitoba

The relationship of demand to supply of dental service is of interest to dentists providing the service, the public seeking service and the politician who tries to satisfy public demand. To elucidate this relationship a telephone survey was made of 93 per cent of dental practices in Winnipeg. The result revealed an average waiting period of 6.2 days for routine dental service. Children were more likely to be refused service than adults who applied for denture service. Nevertheless, routine dental service was readily available on demand and children did not have to wait much longer than adults to secure an appointment. Ten per cent of the dentists answered their own telephones — a fact that suggests inefficient utilization of auxiliary personnel.

■
Le rapport qui existe entre la disponibilité et la demande de soins dentaires intéresse à la fois le den-

tiste qui fournit ce même service, le public qui recherche les soins dentaires, et le politicien qui cherche à satisfaire la demande du public. Dans le but de jeter de la lumière sur cette situation, on a entrepris une enquête téléphonique qui a touché 93 pour cent des cabinets dentaires de Winnipeg. Les statistiques ainsi obtenues démontrent qu'il faut attendre une moyenne de 6.2 jours pour recevoir des soins dentaires ordinaires. Il est plus probable que l'on refuse de traiter des enfants que des adultes qui ont besoin d'appareil de prothèse. Malgré tout, il est relativement facile d'obtenir les soins dentaires ordinaires, et les enfants n'ont pas besoin d'attendre beaucoup plus que les adultes avant d'obtenir un rendez-vous. On a remarqué que 10 pour cent des dentistes répondent eux-mêmes au téléphone, ce qui laisse croire que l'on n'emploie pas d'une façon adéquate le personnel auxiliaire.

It is widely claimed that there is a shortage of dentists in Canada. The term 'shortage of dentists' usually refers to the relationship of the need for service to the available supply of service. The unfavourable dentist to population ratio is

often quoted in this context. Complicating the relationship between need and availability of dental service is the distribution of dentists and of population which re-

sults in a wide range of dentist-population ratios.

The 'shortage of dentists,' expressed as a relationship of need to availability, suggests an unrealistic goal. Since the total need for service is difficult to assess, a much more realistic ratio and one that implies an attainable goal is that of demand and supply. Demand for service, whether by fee paying private patients or by *carte blanche* welfare patients, operates at a relatively lower level. The relationship of demand to supply demonstrates values that are of immediate interest to the profession providing the service, the public receiving the service, and the politician who seeks to satisfy the demands of the public.

To elucidate this relationship we measured the availability of dental service in one urban area. A growing proportion of our population resides in urban centres; the results of such a study were therefore deemed pertinent to the total population.

In addition, we wished to compare the availability of two entirely different types of dental service. Complete denture service is principally required by older adults and represents a classical role for the dentist. Paedodontic service is relatively modern, having been taught in Canada for less than 20 years. This service is rendered to a different age group of patients with a totally different clinical problem. Both types of service are of current interest to public officials and to the profession. Therefore, the second objective was to compare the relative availability of complete denture and paedodontic services.

METHOD

The measure of availability of dental service that is meaningful to the patient is the length of time he must wait for an appointment for himself or his children. This interval represents the resultant of several factors and is therefore nonspecific as to cause.

Apparently *bona fide* requests for appointments were made in order to measure the waiting period in dental offices

objectively. A standard procedure was followed in a telephone canvass of the dental offices listed in the classified portion of the metropolitan telephone directory. Volunteers who had some familiarity with dental office procedure were enlisted. Each was provided with a card listing the dentist's name, office address and telephone number. The cards were duplicated in an A and B series. The A series was for denture service and the B series for paedodontic service.

The request in the A series was for an appointment for a new denture. The 'patient' explained that she was wearing a denture but wanted a new one because the old one had been repaired several times. No emergency was implied in any way. In the B series the 'mother' stated that she had noticed cavities in her five year old son's back teeth. There was no toothache yet. Again, no emergency was implied. The time of calling, the time of the first appointment, and whether the dentist or his assistant answered the telephone, were recorded. The actual words of response were noted in many instances. The canvassers used their own names, followed typed instructions and made a sincere and apparently successful effort to make the request for service seem *bona fide*. In every case where an appointment was received, the canvasser called back later and cancelled the appointment with some invented excuse.

The survey was conducted in October and November of 1964 and was terminated by the approach of the holiday season which could alter the demand for service. A small proportion of the calls were made the previous June. The calls were made at various times throughout the day by busy housewives who therefore simulated actual conditions. The total number of dentists listed in the classified directory was 193. Of this number 20 had died, left practice, or were in limited or specialized practice. In addition, there were 17 group practices of from two to seven dentists and comprising 45 dentists in all. Since many groups utilize one receptionist for the entire group, it was deemed inadvisable to make numerous fictitious requests to a given group. Also, patients are frequently referred within a group. For these reasons each group was

TABLE 1 Total sample practices studied.

Series	Practices	Appointments	Refusals	Mean days	Maximum days
A	104	95	9	5.7	34
B	120	104	16	6.7	40

TABLE 2 Paired sample practices.

Series	Practices	Appointments	Refusals	Mean days	Maximum days	S.D.
A	88	84	4	5.6	34	7.02
B	88	77	11	6.5	33.5	7.31

treated as one practice. This resulted in the loss of 28 further names so that the total number of available practices that could be canvassed was 145. The sample consisted of the 134 practices (92.8 per cent) that were called until the survey terminated with the advent of a holiday season.

The interval or waiting period was measured to the nearest half-day. The response 'come right down' or 'drop in any time' was recorded as one half-day.

Saturday was scored as a half-day and holidays were not counted.

FINDINGS

Of the 145 available practices, 134 (92.8 per cent) were called. These are recorded in Table 1. However, the complete series A and the complete series B are not comparable because they do not represent

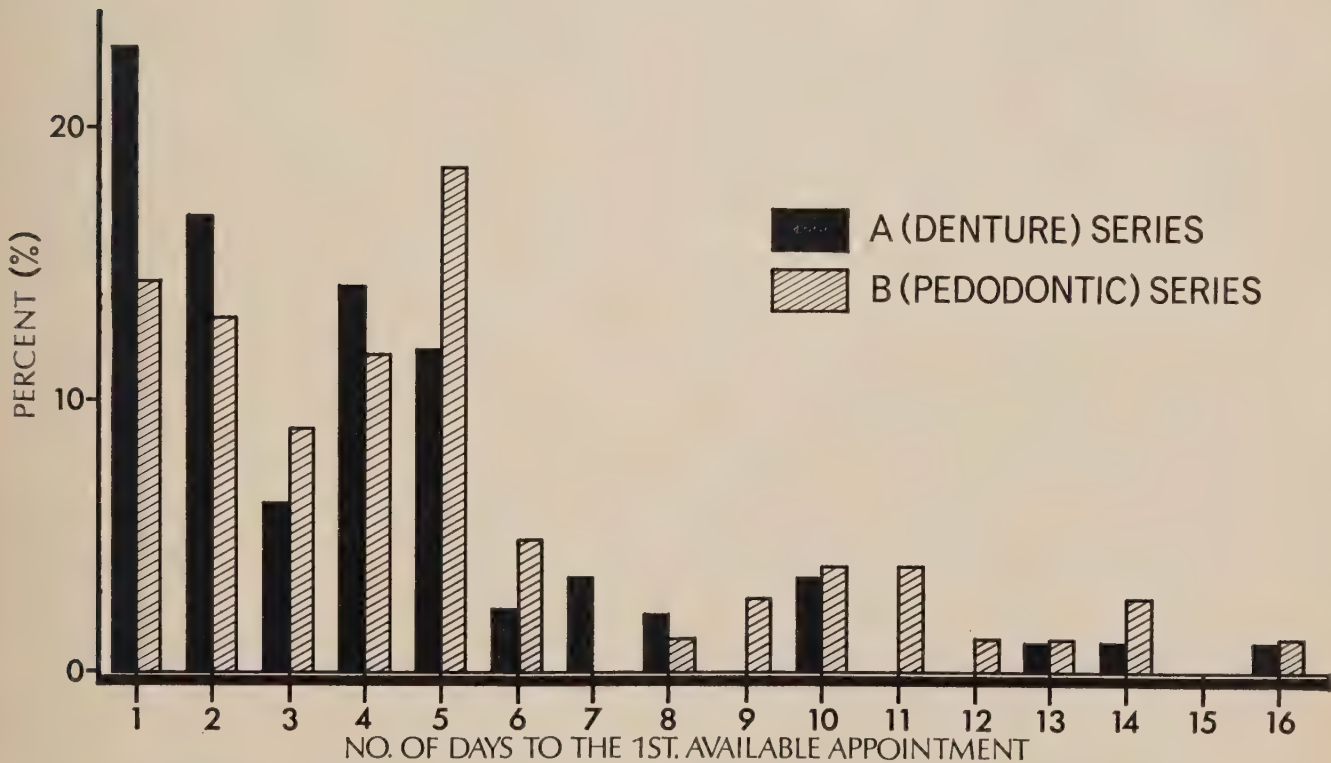


FIG.1.COMPOSITION OF PAIRED SAMPLE

FIGURE 1 Composition of paired sample practices according to length of appointment intervals.

TABLE 3 Pooled sample practices.

Practices available	145
Practices called	134 (92.8%)
Total number of calls	224
Total number of appointments received	199
Average waiting period	6.2 days
Dentist answered the telephone	13 practices

calls to the same offices. From this total sample 88 matched pairs were selected, each pair representing an office called in both the A and B series. These are recorded in Table 2. In this instance the A and B series are comparable. The composition of the paired sample, in terms of appointment intervals, is illustrated in Figure 1.

The means of the A and B series of the paired sample were compared. They were not significantly different at the 5 per cent level of confidence. For this reason the totals were pooled. The overall mean waiting period of 6.2 days is recorded in Table 3.

Of the refusals in the paired sample (Table 2), two occurred in the same offices in both series. There were two offices that refused denture patients but accepted paedodontic patients, while there were nine offices that refused children but accepted denture patients. This is a difference significant at the 2 per cent level.

It is noteworthy that the dentists an-

swered the telephone in 10 per cent of the practices.

SUMMARY

A telephone survey of 92.8 per cent of the dental practices of a large metropolitan area revealed that the average waiting period was 6.2 days for routine dental service.

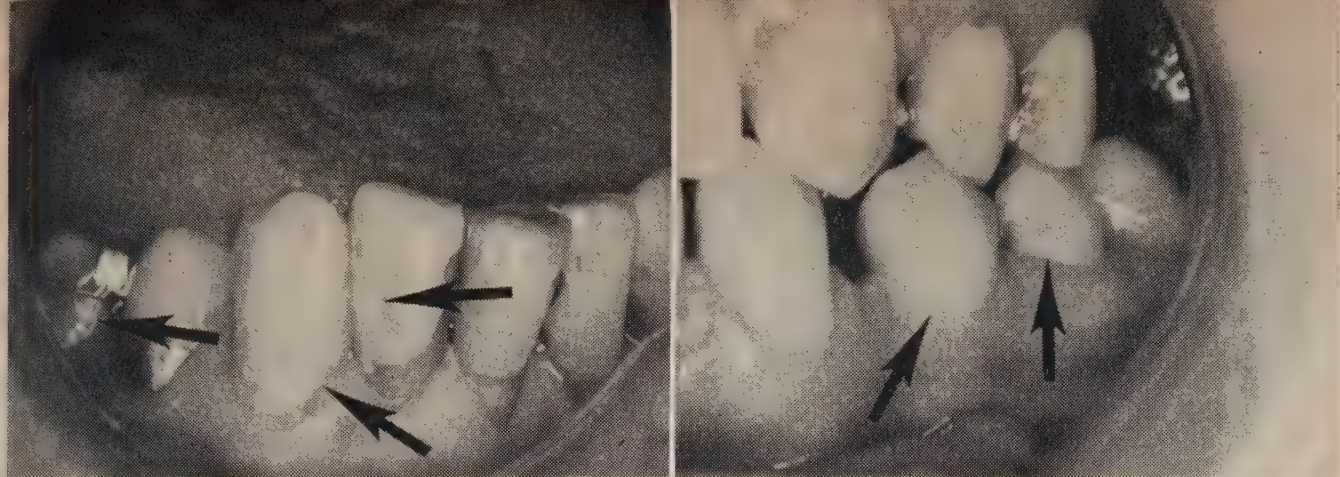
A child was more likely to be refused than an adult who applied for denture service. Nevertheless, it was not difficult to obtain a routine appointment for a child. The bias against children that resulted in refusal did not extend to offices that accepted children because in these practices the waiting period was similar for both types of service. Inefficient utilization of auxiliary personnel was demonstrated by the finding that in 10 per cent of the offices, the dentist answered the telephone.

Routine dental service was readily available in the sample practices studied. Moreover, children did not generally have to wait much longer than adults for service.

Presented at the annual meeting of the Manitoba Chapter, Canadian Society of Dentistry for Children.
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*Faculty of Dentistry,
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How will you pay for continuing office expenses when you are ill or otherwise disabled? Through office overhead expense protection, of course. More than 2,000 dentists are now enrolled in a group office overhead protection plan offered by CDA-sponsored pension and insurance plans. If you want this protection write now to the administrator of these plans, Professional and Industrial Pensions Ltd., 2249 Yonge Street, Toronto 7, Ontario.



The arrows point to adhesive restorations under surveillance. These were placed by a dentist in a typical dental office.

Progress in the development of adhesive restorations

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A new potentially adhesive filling material is described. Termed an insoluble polymer derived from liquid vinyl-type comonomers with a mixture of inorganic and glass fillers, this material is being clinically tested in Canada and the United States. The monomeric mixture and glass filler produce a semi-transparent solid which tends to pick up colour from adjacent tooth tissue. The material apparently strengthens the tooth by becoming an integral part of, rather than an insert into the tooth structure.

Un nouveau ciment d'obturation adhésif est actuellement mis à l'épreuve clinique. Polymer insoluble, il est dérivé de comonomers liquides du type vinyl, auquel on ajoute une substance fondamentale inorganique ou à base de verre. Un tel alliage donne une masse solide semi-transparente qui tend à prendre la couleur des dents adjacentes, et qui semble renforcer la dent qu'il obture en devenant partie intégrante.

In 1960 a project aimed at developing a restorative material which would become an integral part of the tooth was begun by Roydhouse and associates at the Eastman Dental Dispensary (EDD) in Rochester, New York. In 1961 this project became a co-operative effort involving several institutions and the Medical Products Division of the Minnesota Mining and Manufacturing Company (3M) of St. Paul, Minnesota. This research has resulted in the commercial production of such a restorative material — Addent. This report reviews the course of the research and describes the materials employed and clinical results achieved to date.

Many people helped in the investigation, but particularly the inspiration and support of B. G. Bibby (EDD) and J. J. LaBuda (3M) must be acknowledged. The work of Weiss, Leonard and Mauro in Rochester and of Casey in St. Paul as well as the inventions of Rambosek and Chang of 3M contributed much to the evolution of the new restorative methods.

The first task was the selection of materials.

What qualities should a restorative material have? In my opinion, no set of laboratory tests indicate whether experi-

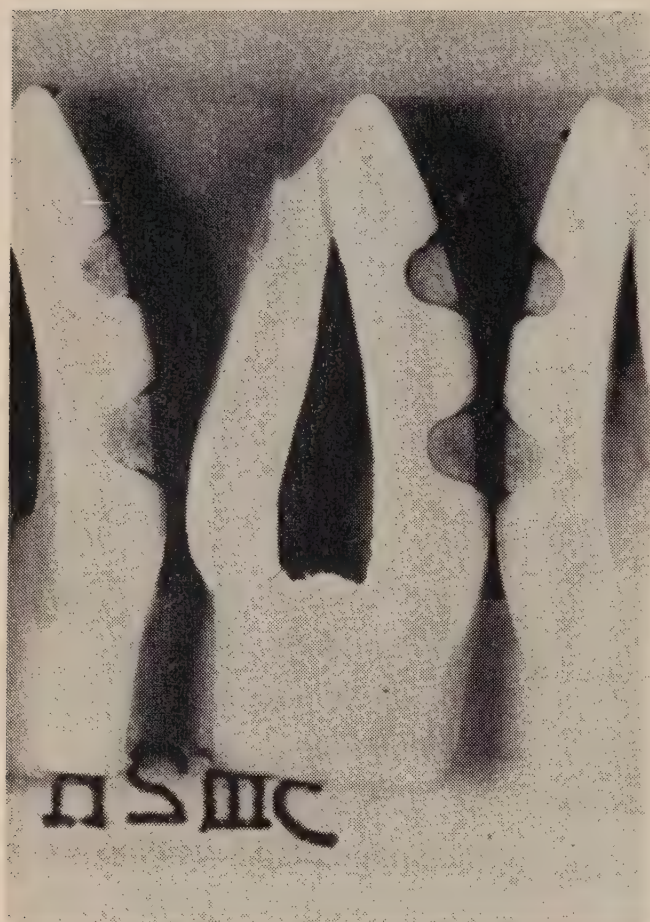


FIGURE 1 Non-retentive grooves cut through to dentine. Materials which remained in place after hot-cold cycling or prolonged immersion were accepted as possible dental adhesives.

mental materials will be satisfactory in the mouth. The American Dental Association's specifications, while important in themselves, cannot be considered as indicative of the desirable properties of a universal restorative material. On the other hand, a list of desirable properties of restorative materials is useful as an ideal, but is based upon knowledge not clearly related to the oral environment.

The described physical properties of dental materials are highly specific and closely related to the nature of the material itself. These descriptions are not related clearly, if at all, to the chemical, physical and physiological properties of teeth which determine the durability of the teeth in the mouth. "After all," Ivins¹ suggests, "a quality is only a quality of a group of other qualities"

The known properties of teeth and the nature of the oral environment were discussed with scientific personnel of various companies and research institutions. On

the basis of chemical, physical and toxicological data, various materials were selected for screening tests. Materials that performed successfully in such screening tests (not necessarily a valid predictor of clinical practicality) and were no more detrimental to the dental pulp than presently used materials were then subjected to clinical trials. Failures were expected in the clinical trials and therefore a group of patients was organized.

SCREENING TESTS

Non-retentive cavities: V-shaped notches were cut on the labial surfaces of extracted teeth with inverted cone burs and the cavities were restored with a variety of materials (Figure 1). The samples were kept in water at 37°C. and some were cycled in hot-cold saline (1 minute at 0°C., and at 65°C.). Restorations of silicate cement, silver amalgam and cold cured acrylic resin fell out before or during immersion in water. Those materials which remained in place offered possibilities as adhesive restorative materials. Some formulations remained in such notches for six months or more. Three or four hundred teeth were used.

Dye penetration tests: Non-retentive cavities were cut through to dentine in extracted bovine and human teeth and filled with restorative materials. The junctions of these restorations were exposed to methyl violet, basic fushsin and chromotrope 2R. Some sets were given hot and cold cycling. Acrylic resin, silicate cement and amalgam were contrasted with experimental materials. A published abstract has described the results in these tests.² Many factors determine the form of leakage observed in the laboratory, and the clinical significance of such tests can only be a matter of debate at present.³

Toxicity tests: In co-operation with the University of Detroit Dental School, tissue reactions to implants in the belly wall of rats were examined histologically.^{4,5} The significance of the results obtained is a matter of interpretation. Some pulpal studies indicated that at least two materials were no worse than cold cured acrylic resin in pulpal effects. There is

TABLE 1 Solubility and dimensional change test: percentage increase in weight and volume of polymer-fluoapatite and silicate test materials.

Material	Time in weeks											
	1			4			8			26		
	Wt.	Vol.	N	Wt.	Vol.	N	Wt.	Vol.	N	Wt.	Vol.	N
M2F45 d=1.6	8.30	10.90	18	14.80	18.70	12	25.70	28.10	12	33.20	—	9
MOF70 d=2.05	0.37	0.37	19	0.81	0.62	15	1.5	1.7	12	2.1	3.0	3
Silicate d=2.12	0.62	-0.12	18	1.0	-0.24	15	1.36	0.0	12	1.42	-0.24	9

N is the number involved in each average.
d = density.

doubt about the significance of the pulpal reaction to acrylic resin. Some claim that cold cured acrylic resin is toxic by virtue of its immediate effects; that is, the monomer or catalytic fractions affect the pulp. On the other hand, others assert that the initial damage is due to a summation of effects and is recoverable. There is only one published report of a series of pulpal failures under acrylic resin crowns or restorations.⁶ Even here the effects of gross leakage and the techniques of insertion were unknown factors.

Solubility tests: Combined solubility, dimensional change and strength variation tests were devised.

Cylinders ¼ inch in diameter by ½ inch in length were made of silicate cement and experimental formulations of polymers and fillers. Silicate cement was weighed and mixed according to the manufacturer's instructions. The cylinders were kept in tap water at 37°C. At stated times the cylinders were taken from their bottles, dried for a given time in room conditions and examined for surface state, signs of deterioration, measured, and returned to the water. Weight, length, diameter, and compressive strengths are given in Tables 1 and 2.

Silicate cement after 26 weeks increased in weight by 1.4 per cent and decreased in volume by 0.2 per cent. The surface was noticeably friable and had begun to disintegrate. One particular mixture which is coded in the tables as MOF70 was extensively used during the research; this composite of base polymer (MO) and

synthetic fluo-apatite (F70) increased in weight by 2.1 per cent after 26 weeks and in volume by 3 per cent. The compressive strength of the silicate at 66 days was approximately 30,000 psi and the polymer-filler mixture 21,000 psi.

The water absorption of silicate cement cylinders after 26 weeks diminished but the solubility increased. As the weight of the water absorbed began to equal that of the material dissolved, the weight gain decreased. The synthetic fluo-apatite was mixed with another base polymer (M2) to provide a contrast between various polymers; this quite unsuitable material called M2F45 showed marked absorption and loss of strength in the solubility tests. The M2 polymer was not used extensively in teeth. However, the mixture of base polymer (MO) and fluo-apatite absorbed some water, but did not decrease in volume or show signs of disintegration. The MO polymer base with fluo-apatite was expected to be equal or

TABLE 2 Strength variation test: compressive strength.

Material	Time	
	6 weeks	9 weeks
	psi	psi
M2F45	5,000 (approx.)	1,600
MOF70	22,000	21,000
Silicate	30,000	30,000

superior to silicate cement in the mouth. The loss of substance of teeth and restorations in the mouth is due to the interaction of at least two mechanisms: softening or solubility and abrasion. Silicate cements tend to depolymerize in solutions of intra-oral pH,⁷ and water-absorption will plasticize and soften acrylic resin. A softened surface abrades more readily.⁸ This process, that is softening and abrasion, occurs in animals eating fresh green grass. The juices of the grass soften the enamel and the dentine, and the tooth wears rapidly.⁹

CLINICAL TRIALS

Clinical trials of the material MOF70 were made between 1961 and 1963 at the Eastman Dental Dispensary and at Attica State Prison, New York. Subjects were selected from a group showing either rapid carious attack or failure of traditional dental restorative materials. A variety of clinicians, methods, fillers, and techniques were used.

During this period the research was confined to variants of the MO polymer and a variety of fillers. Methods of preparation and testing gradually became more sophisticated.

Posterior rather than anterior teeth were used in order to reveal the limitations of the materials quickly. Masticatory stresses and accompanying abrasion show their effects more rapidly in posterior than anterior teeth. The trials show four phases:

1. Experimentation: techniques, material handling and clinician experience. 1961-63
2. Consolidation: techniques and material handling formalized; fillers and clinicians varied. 1962-63
3. Verification: materials, preparatory techniques and clinical procedures standardized and fewer clinicians used. 1963-
4. Clinical usage and analysis: in dental offices rather than in institutions and one filler only used in anterior teeth. Experimental trials of posterior restorative materials continuing. 1963-

The clinical trials up to 1963 convinced the observers that polymer-filler mixtures

had obvious advantages over silicate cements and cold cured resin. The research therefore expanded in 1962-63. K. and L. Langeland (Buffalo, New York) and H. R. Stanley (Bethesda, Maryland) began an assessment of the pulpal effects of the formulation developed by Rambosek and Chang and manufactured by the Minnesota Mining and Manufacturing Company at that stage. Other investigators began controlled studies in which direct comparisons with existing methods are being made.

PRESENT MATERIALS

The physical, chemical and some clinical properties of presently available materials were described at the Forty-third Meeting of the International Association for Dental Research in Toronto, July 1965.^{8,10-13} Some reports on the biological testing have also been made.^{14,15}

Variation of the materials, techniques and operator skills have occurred throughout the course of the research. As soon as failures were detected, changes were made to eliminate suspected causes. Although the experimental method was not controlled or scientific in all respects, science and technology were deeply involved in assessing and affecting the changes. Oral behaviour and permanence were considered the ultimate test. Hence much effort has been expended on histological evaluation to ensure safety, followed by clinical trial.

The basis of controlled studies of dental restorative procedures is quality control in manufacture and invariance of the restorative material up to the stage of insertion in the mouth. At present some 10,000 restorations have been completed and are under continuing observation by several groups. Therefore few physical and chemical tests were made until clinical experience indicated which fillers and mixing systems were most suitable.

Development and Nature of the Materials.—Many formulations have been used during both the laboratory and clinical research. The material called Addent, now commercially available, developed out of

the formulations and is essentially as follows:

(a) Base polymer: The organic binder is a blend of various liquid vinyl-type comonomers capable of becoming highly cross-linked. The monomers undergo a form of addition polymerization through free radical initiation. The chemical process of the setting is complicated. The production of an insoluble polymer is the principal aim and the failures in formulations have been due mainly to variations in the rate and degree of polymerization. If various linkages are left, then water absorption is increased. Cold cured epoxy resins and Eastman 910, which were tested, failed because of their water sensitivity, leading either to pitting or softening.

(b) Catalyst: A form of organic peroxide is used to produce the free radicals. The difficulty in the production of a catalyst system has been the attainment of a reasonably stable liquid or paste.

(c) Fillers: Glasses have been tried in a variety of forms. The anterior restorative material, Addent, is a composite of small glass beads and rods with some white opaque, inorganic filler. The monomeric mixture and the glass filler produce a semitranslucent solid which picks up colour from the adjacent tooth tissue. A smooth surface is produced on this polymer-bead composite with customary polishing agents although even better surfaces can be formed through manipulative techniques and the use of polishing agents like cerium oxide.

(d) Dentine coat: The biological properties of these restorative materials have been a matter of some debate among those involved in the toxicity testing. The base polymer, when mixed with approximately more than 50 per cent inorganic filler, is like acrylic resin in pulpal effects.¹⁶ These reactions are thought to be due to some of the monomeric fractions and possibly the catalytic portions. Since no damage to the pulp must result from the use of a restorative material, a coating¹⁷ has been developed by the 3M Company which is impermeable to water and to the monomeric and catalytic fractions. It is a film forming, non-toxic vinyl-type copolymer, deposited out of an organic solvent on the dentine. This material coats dentine rather than acting as a dental liner like

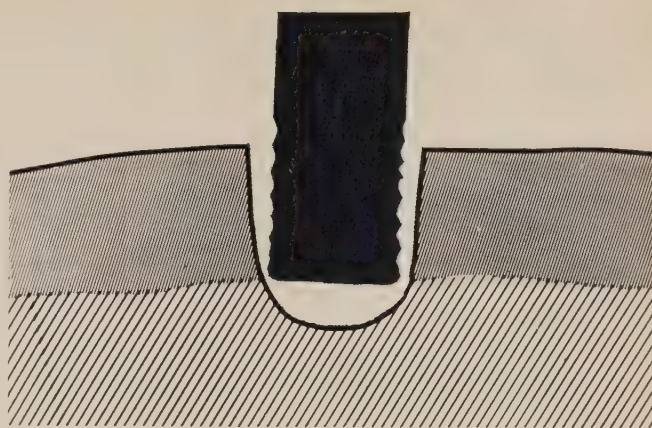


FIGURE 2 A stainless steel pin (0.051 inch) is placed in a tapered hole (depth 0.065 inch) in enamel and dentine and held therein with possible adhesive materials. A pull of above 10 lbs. weight was required to remove the wire when the formulations discussed were used.

zinc phosphate cement. The molecular film produced does not apparently interfere with the development of adhesion. Preliminary results from pulp studies,¹⁷ according to the manufacturer, are encouraging and pulpal reactions are minor or seem to be limited to tubules beneath pin-holes in the dentine coat.

The physical properties of the restorative material are given in Table 3.

Adhesion.—A test simulating use conditions was devised by Rambosek and myself.^{10,11} An 0.051 inch diameter stainless steel wire was placed in a hole cut in dentine and enamel. The teeth were kept moist before, during and after the siting of the pin. A flat was produced on the surface of a tooth and a hole cut to a depth of 0.065 inches using a Densco 2D-T bur. This cavity was 0.060 inches across the top, had a taper of approximately eight degrees, and rounded base (Figure 2).

Presently used restorative materials such as acrylic resin, silicate cement and zinc phosphate cement would not hold the pin in place until the sample could be brought to the Instron testing machine; hence the test is not possible with traditional materials.

The materials holding the pin were trimmed level with the top of the hole. The pin was pulled parallel to the long axis of the hole. Forces exceeding 10 lbs.

TABLE 3 Physical and mechanical properties of the composite restorative material.

Property	ASTM No.	Unit	Dry Sample	Wet Sample*
Tensile strength	D-1708	psi	5,150	5,260
Tensile modulus	D-1708	psi	135,000	216,000
Elongation	D-1708	%	2.7	2.5
Flexural strength	D-790	psi	9,980	12,500
Flexural modulus	D-790	psi	743,000	976,000
Deflection	D-790	inches		0.02
Compressive strength	D-695	psi		20,800
Compressive modulus	D-695	psi		1,050,000
Deformation	D-695	inches	0.05	0.027
Izod impact	D-256	ft.-lb./inch width	0.058	0.052
Coefficient of thermal expansion	D-696	°C.	19.2 (0-30°C.) 45.0 (30-50°C.) H-100	24.5 (0-30°C.) 47.0 (30-50°C.) H-88
Rockwell hardness 60 Kg. load, 1/8 inch ball				
Water absorption 100% R.H.	D-570	%	0.29	
Immersion in water 24 hours	D-570	%	0.15	
Linear polymerization shrinkage†		%	0.36	

Reproduced from Chang et al.⁸
*Specimens were stored in water at 37°C. for three weeks before test.
†Actual measurement in open mould.

weight were needed to extract the pins when the base polymer (MO) was used.

The removed plugs often show evidence of enamel and dentine at the interface when examined under a microscope. The inner surface of the cavity is pulled out and radial cracking is observed. Likewise, the experimental materials are sometimes seen as a film coating the inside of the cavity.

The adhesion values for the restorative materials were calculated from the surface area of the hole and the pull needed. The standard deviation of the samples using 120 observations is approximately 200 psi. Such variance could be accounted for on the basis of variations in the area of the hole alone.

The experimental materials based on the base polymer (MO) produced forces of adhesion of 1,200-2,000 psi. These figures should be compared with other materials in the same test rather than taken as absolute values. One other material system gave values of about 800 psi. Water immersion and hot and cold cycling did not decrease the adhesion values. In fact, im-

mersion in warm water increased the values. Some 10 samples were pulled one year after immersion and no fall-off in values occurred.

Are these materials really clinically adhesive restorative substances? This question can only be answered by further clinical and laboratory research. Not enough information is available about these materials or other restorative materials in vital teeth. As a simple example, an investigation into the change of shape of cavities during a rise in temperature has shown that the change is negligible over a 30°C. range (except a 4 per cent decrease in depth on warming from 12° to 40°C.). But a tooth, when dried as it might be under a rubber dam, changed dramatically when re-wet. Cavity depth decreased by 30 per cent although the outline of the cavity was unchanged (measured to an accuracy of 0.0005 inch) in width and length.¹⁸

Much of the significant information so far gained is observational in nature. For example, one variant of the materials under certain circumstances can be used to

replace incisal edges of anterior teeth. There is no set of data or measures that can be produced to provide an explanation for the success of such restorations. Oral behaviour, inexplicable by present day measures, has been a considerable obstacle to scientific description. One explanation is that these restorations cannot be regarded as inserts. They have become an integral part of the tooth. In a sense, 'the group of qualities has changed' and our present descriptions of properties are unsuitable.

Can the term adhesion be used, or should we talk of 'dental adhesion' and define that phrase? The definition of the terms used depends upon the tests used to demonstrate the existence of the phenomena.¹⁹ What tests will demonstrate dental adhesion, so that the term is clinically valid? The significance of many of our material tests in relation to the clinical environment remains uncertain and the dental adhesion tests are certainly similar in this respect. Weiss, Mauro, Roydhouse, and other dentists consider that adhesion to tooth structure develops when careful techniques are used. This implies that the restoration has become, as far as physical forces are concerned, an integral part of the tooth.

CLINICAL TECHNIQUES

Clinical investigation with the present materials has shown that the mix is best injected into the cavity and covered with a clear polyester strip.²⁰⁻²² Alternatively, the carrying instrument is wiped off against some part of the cavity (the material is sticky when unset) and the mass is also agitated or vibrated with the carrying instrument.

Contour is obtained by manipulating a polyester strip before set or by trimming with appropriate burs, stones and diamond instruments after set. The restoration is repairable and additions may be made if the contour is inadequate.

The materials have performed satisfactorily to date. Failures do occur and from these further knowledge about techniques is gained. The handling of the materials is simple. Two particular causes of failure

can be noted. First, the mix cannot be packed into cavities. It must be injected, wiped or vibrated into the cavity; otherwise air bubbles or weak layers or areas are created. Secondly, the substance must not be manipulated after the onset of setting; otherwise its physical nature, and perhaps adhesion, is weakened.

When some batches have been allowed to set in contact with air a slightly tacky surface results; in such cases overpacking and trimming have been necessary.

Both clinical and laboratory development and experiments are continuing. One new formulation is sufficiently hard to wear away carbon steel burs or hand instruments. Such a material requires better polishing agents than are presently available.

FUTURE SIGNIFICANCE

What could we speculate about the advantages of materials showing adhesion to teeth?

Bonding at the junction of restoration and tooth will prevent the leakage experienced with the present inserts. The extent of the cavity can be decreased because extension for prevention will not be necessary; the tooth-filling junction is no longer a region of weakness. The materials can be polymerized in situ. Neither taper for inlays nor the undercutting associated with the weaker materials are necessary. The total structure is restored; stresses will pass from the tooth through the restoration and back to the tooth again. Fractures of teeth may be prevented, and fatigue failures of cusps and subsequent cracking of dentine caused by flexing during mastication may be reduced. The sealing of the cavity may produce, on the other hand, some unknown physiological changes in enamel, dentine and the pulp. For example, the significance of the permeation of water^{23,24,25} through enamel and dentine is uncertain at present.

What will adhesives not do?

The fond hope that adhesives will allow the cutting of saucer-shaped cavities and the direct attachment of orthodontic brackets may not be rewarded. Personal

clinical experience^{20,21,22} with the use of these materials suggests that underlying dentine and enamel are inadequate in tensile and fatigue strength to allow the creation of saucer-shaped restorations or the replacement of incisal edges without pins. The weakest link in the chain will probably turn out to be the tensile strength or other properties of dentine and enamel. Research in restorative methods certainly must accompany further developments in adhesive restorative materials.

What is required for future adhesives?

Resistance to abrasion is an important requirement. The materials so far used and described have inadequate resistance to abrasion when contrasted with enamel; hence the manufacturer's recommendation limiting the use of Addent to anterior restorations. Another requirement is a thorough review of cavity design based upon biophysical and biochemical properties of teeth and restorative materials. Especially significant in this respect is the relationship of water circulation and all that directs or controls the nature of this fluid. The resistance of the enamel and dentine to cyclic stressing may very well determine our materials and techniques.

A revision of all techniques will be necessary. We should preserve the best of present methods, but must not exclude changes or innovations. We must concentrate on doing minimum damage to the patient and replacing the original structures. What is required is truly artificial dentine and artificial enamel. To produce such substitutes, more must be known about teeth and how restorations function in the mouth.

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1. Ivins, W. Prints and visual communication. London, Routledge and Kegan Paul, 1953.
2. Roydhouse, R. H. and Weiss, M. E. Aspects of penetration. IADR Abstracts 1962. Fortieth international meeting.
3. Roydhouse, R. H., Weiss, M. E. and Leonard, L.

- Penetration about the margins of restorations. Unpublished report.
4. Roydhouse, R. H. Implants in animals as a method of testing restorative materials. 1963. Rochester, New York. (Thesis, University of Rochester).
 5. Roydhouse, R. H. and Weiss, M. E. Tissue reactions to restorative materials. IADR Abstracts 1964. Forty-second international meeting.
 6. Grossman, L. I. Acrylic resin fillings and the dental pulp. Reply to Dr. H. D. Coy. J.A.D.A. 48:486, 1954.
 7. Alexander, G. B. Polymerization of monosilicic acid. J. Am. Chem. Soc. 76:2094, 1954.
 8. Chang, R. W. H., Dahlman, K. E. and Rueb, J. T. 182. Properties of a glass-reinforced polymeric material for dental filling. IADR Abstracts 1965. Forty-third international meeting.
 9. Barnicoat, C. R. Wear in sheep's teeth. New Zealand J. of Sci. and Tech. Sec. A: 38:583, 1957.
 10. Rambosek, G. M. and Roydhouse, R. H. 180. A simulated use test for dental adhesion. IADR Abstracts 1965. Forty-third international meeting.
 11. Roydhouse, R. H. and Rambosek, G. M. Adhesion values from the pin-hole test: an analysis. IADR Abstracts 1965. Forty-third international meeting.
 12. Schulman, J. 183. A clinical evaluation study of the Minnesota Mining and Manufacturing Company brand Addent dental restorative system. IADR Abstracts 1965. Forty-third international meeting.
 13. Going, R. E. and Loisell, R. J. 184. Microleakage of a new restorative material. IADR Abstracts 1965. Forty-third international meeting.
 14. Langeland, K. R. Biological tests in evaluating dental materials. IADR Abstracts 1964. Forty-second international meeting.
 15. Langeland, K. R. et al. Evaluation of a new filling material. Chicago Dental Society, Midwinter meeting. February 1965. Unpublished report.
 16. Kramer, I. R. H. Reaction of the pulp to self-polymerising acrylic resins containing methacrylic acid. Brit. D.J. 101:378, 1956.
 17. Manufacturer's information. September 1965.
 18. Roydhouse, R. H. and Nicolson, A. T. Effect of thermal changes on cavity shape in teeth. Unpublished report.
 19. Koehn, G. W. Behaviour of adhesives in strength testing. Symposium: adhesion and adhesives, fundamentals and practice. New York, John Wiley and Sons, Inc., 1954.
 20. Roydhouse, R. H. Clinical trials of adhesive restorative materials. Clinical lecture A.D.A. 105th annual session. San Francisco, November 1964.
 21. Roydhouse, R. H. Clinical trials of a new restorative material. Conference on the teaching of dental materials. Chicago, Northwestern University, November 1964. Processed.
 22. Roydhouse, R. H., Scott, R. W. and Munn, R. E. D. A new material for restorative dentistry. Clinical lecture. British Columbia Dental Association convention. Vancouver, British Columbia. May 1965.
 23. Bergman, G. and Siljestrand, B. Water evaporation in vitro from human enamel. Arch. O. Biol. 8:37, 1963.
 24. Haines, D. J., Berry, D. C. and Poole, D. F. G. Behaviour of tooth enamel under load. J.D. Res. 42:885, 1963.
 25. Emerson, W. H. Relation of thermolabile components to optical properties of dental enamel. J.D. Res. 39:864, 1960.

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Two year effect of supervised toothbrushing with an acidulated fluoride-phosphate solution

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Two comparable groups of grade 1-2 school children participated in a maximum of nine toothbrushings with an acidulated fluoride-phosphate solution or a placebo of distilled water. After one year, the experimental group had 39 per cent fewer new carious lesions in permanent teeth than the control group. After two years, the experimental group had 15 per cent fewer new lesions than the control group. Although results after two years appeared to be less favourable than at the end of the first year, the absolute difference in caries increments between the two groups was virtually unchanged during the second year. This suggests that the experimental group derived no further benefit during the second year of the study.

Les écoliers de 1ère et 2ème années qui ont fait l'objet de l'étude, ont été séparés en deux groupes. Dans le groupe de contrôle, les enfants ont

subi neuf applications d'une solution acidulée de fluorure et de phosphate. Les enfants du groupe de contrôle ont employé de l'eau distillée en guise de placebo. Les enfants ont appliqué la solution eux-mêmes à l'aide d'une brosse à dents, sous la surveillance des auteurs. Au bout d'un an, on a trouvé dans le groupe expérimental 39 pour cent moins de caries nouvelles sur les dents permanentes que dans le groupe témoin. Au bout de deux ans, le premier groupe présentait 15 pour cent moins de nouvelles caries que le groupe témoin. Bien que les résultats semblent moins favorables au bout de la deuxième année qu'ils ne l'étaient après un an, il n'en demeure pas moins que la différence entre les taux d'augmentation des caries au sein des deux groupes est restée la même au cours de la deuxième année. Il semble donc que les brossages effectués durant la deuxième année n'ont pas apporté d'améliorations additionnelles dans le groupe expérimental.

In a previous paper we reported that four or five supervised toothbrushings with an acidulated fluoride-phosphate solution over a period of seven months appeared to retard, if not prevent, the onset of caries in the newly erupted six year molars when measured one year after the original examinations.¹

Brudevold and others note that enamel has a greater fluoride uptake from a solution of sodium fluoride acidulated with phosphoric acid than from a stannous fluoride solution or from a neutral sodium fluoride solution.² Topically applied, the acidulated fluoride-phosphate solution seems to have a greater anticariogenic effect than that of stannous fluoride or neutral sodium fluoride.^{3,4}

Berggren and Welander claim a significant reduction of the caries attack rate when Swedish school children brushed their teeth, under supervision, with a 1 per cent sodium fluoride solution, nine times in two years.⁵ The subjects in the control and experimental groups of that study were, however, not truly comparable.

The present study tests whether or not the acidulated fluoride-phosphate solution developed by Brudevold, when used in a classroom toothbrushing drill, measurably reduces caries incidence over a period of two years. Results after one year appeared to indicate that the procedure is beneficial to the permanent teeth, but of no statistically significant value to the deciduous dentition. We advanced an explanation for this phenomenon.¹ Our study was then continued for a further period of one year, using the same subjects and with the addition of four more classroom sessions of toothbrushing.

METHOD

Preparation and characteristics of the test solution were as reported in the previous paper.¹ The control solution was distilled water.

Subjects of this study were at its commencement grade 1 pupils of the schools of the Nanaimo and Courtenay areas of British Columbia. Less than 1 per cent of the parents requested that their child be excluded from the study. At the initial

examination the subjects' average age was six years and four months; at final examination in grade 3, eight years and four months.

Using No. 5 plane mirrors, No. 5 explorers, and standardized artificial lighting, one of us (D.C.T.B.) examined subjects initially, one year later, and finally at the end of two years. During this interval public health nurses visited each classroom approximately every six weeks and, with the teacher, supervised a total of nine toothbrush drills.

Children of each classroom were in the beginning divided arbitrarily into two equal groups, either by the use of random numbers, by alphabetical order, or by location in the room. Throughout the study children assigned to the experimental group used the fluoride-phosphate solution and the control group used distilled water. Individual toothbrushes and paper cups were provided.

The toothbrush was dipped in the test or placebo solution before brushing each quadrant of the mouth by a standardized method as described in the Canadian Dental Association pamphlet entitled *How to Brush Your Teeth*.

Of the original group of 948 children, 815 completed at least four of the five drills within the first school year. At the end of the second year 464 subjects were available for re-examination and who had completed at least seven of the nine toothbrushing sessions within the two years. Population migration, especially in the Courtenay area, contributed to a heavy loss of subjects from this study over the two year period.

The second and third examinations were carried out without reference to the original charts; nor did the examiner (D.C.T.B.) know whether the child had used the test or placebo solution. Before each child was dismissed the dental assistant compared the records of the present and previous examinations. Any tooth or surface for which a changed diagnosis was recorded was especially reported by the assistant to the examiner, who rechecked the current diagnosis. Any tooth surface 'catching' the explorer was classified as carious. Upper molars were considered to have two occlusal surfaces at risk, that is the mesial and distal fossae.

Because the benefits to the deciduous dentition were not statistically significant after the first year, permanent teeth only were re-examined after the second year.

RESULTS

Table 1 compares the average age, proportion of males and females, and initial caries status of members of the control and experimental groups who were re-examined after two years. As was the case with the larger number examined after one year, there was little age or sex difference between the two groups. The control group, however, had a rather higher initial caries status. Therefore the caries increments of the control and experimental groups were also compared after being stratified according to the previous caries experience of the subjects. The composition of the control and experimental groups examined after two years as indicated by the attributes in Table 1 shows little difference from that of the larger group examined after one year.

Seven reversals of diagnosis were confirmed at the final examination; that is surfaces were then reported as caries-free which had previously been recorded as carious. These are considered to be errors in the original diagnosis.

Permanent anterior teeth, because of their very low risk of caries attack at this age, were carious in only three subjects at the time of the third examination.

Table 2 presents caries increments in terms of permanent tooth surfaces over the two year study period. An average of 6.0 new carious surfaces per student was experienced by the control group, while for the experimental group an average of 5.1 new carious surfaces was noted. This difference is significant at the 1 per cent level of confidence. A comparison of these rates with increments of 2.6 and 1.6 respectively for the control and experimental groups after the one year examination indicates that no additional benefit was evident as a result of the toothbrushing sessions during the second year. A discussion of the results in relation to the various levels of initial caries status follows Table 4.

Table 3 shows the numbers and percentages of subjects in the control and experimental groups with various caries increments during the two year study period. The experimental group appears to have benefitted from the toothbrushing with the fluoride-phosphate solution, 46.3 per cent having had less than five new carious surfaces of permanent teeth compared to 34.5 per cent of the control group. These increments are in marked contrast to those at the end of the first year examination, when 88.8 per cent of the experimental group and 75.8 per cent of the control group had less than five new carious lesions during the study period.

Table 4 shows the average caries increments for the control and experimental groups stratified according to the subject's initial caries status. At all levels of prev-

TABLE 1 Age, sex distribution and initial caries attack rates of control and experimental groups, fluoride-phosphate toothbrushing study, 1962-1964.

Item	Control group	Experimental group
Number of subjects	229	235
Average age (years, months)		
Males	6 y 4.3 m	6 y 4.3 m
Females	6 y 3.9 m	6 y 3.9 m
All subjects	6 y 4.1 m	6 y 4.1 m
Percentage of males	49.3	48.1
Percentage of females	50.7	51.9
Average DMF teeth per child	0.49	0.37
Average DMF surfaces per child	0.80	0.59

TABLE 2 Caries increments of permanent tooth surfaces of control and experimental groups, fluoride-phosphate toothbrushing study, 1962-1964.

Item	Control group	Experimental group
Number of subjects	229	235
New carious surfaces — permanent teeth	1,370	1,199
Average caries increment per child	6.0	5.1
S.E.	0.25	0.22
Percentage reduction in caries increment for experimental group		15.0%

TABLE 3 Percentages of control and experimental groups with various caries increments of permanent tooth surfaces, fluoride-phosphate toothbrushing study, 1962-1964.

Caries increment of permanent tooth surfaces	Control group	Experimental group
0	9.2% (21)	11.5% (27)
1 — 4	25.3% (58)	34.8% (82)
5 — 9	48.5% (111)	42.5% (100)
10 or more	17.0% (39)	11.2% (26)
Total	100% (229)	100% (235)

TABLE 4 Average caries increments of control and experimental groups stratified by initial caries status of permanent teeth, fluoride-phosphate toothbrushing study, 1962-1964.

Previous caries experience by surfaces	Control group	Experimental group
0	5.5 (174)	4.5 (185)
1 — 4	8.1 (42)	7.0 (43)
5 — 9	5.8 (10)	5.5 (6)
10 or more	4.0 (3)	3.0 (1)
Total	6.0 (229)	5.1 (235)

Number of subjects in each category shown in parentheses.

ious caries experience the subjects of the experimental group averaged a lower caries increment during the two year period.

A comparison of the increments during the second year of the study only, obtained by subtracting the one year increments from the two year increment, shows little difference between the increments for the control and experimental groups at each level of initial caries status. It may be recalled that after the first year, in most cases, the increment at each level of initial caries status for the experi-

mental group was less than for the control group. The one exception was among children having 10 or more carious surfaces initially. In this group the increment for the children using fluoride-phosphate was only slightly higher than that for the controls.

DISCUSSION

Control group subjects who carried out four or five toothbrushing drills experienced a one year average caries increment

of 2.6 permanent tooth surfaces. Experimental group subjects experienced an increment of 1.6 surfaces after a similar lapse of time. This represents a percentage decrease of 38.5 per cent.

Control group subjects who carried out not less than seven toothbrushing drills experienced a two year average caries increment of 6.0 permanent tooth surfaces. Experimental group subjects experienced an increment of 5.1 surfaces during the same interval. This represents a percentage decrease of 15.0 per cent.

Therefore after two years the absolute difference between the caries increment of the two groups was maintained at approximately the same level as after one year, but no further benefit was derived. Furthermore, this is true at all levels of previous caries experience.

However, in this study a significant number of permanent tooth surfaces at risk were those of anterior teeth. One would not expect these surfaces to become carious and neither did they become carious in the period during which the subjects were aged between six and eight. A further significant proportion of the tooth surfaces at risk in this study were those with pits and fissures of the first permanent molars which are highly susceptible to caries attack.

The hypothesis is therefore advanced that Bibby's suggestion⁶ that partially decalcified enamel may be re-hardened in the presence of calcium, phosphate and fluoride ions may not perhaps apply to pit and fissure lesions. The impaction of food particles presumably continues the caries process in these lesions.

An alternative hypothesis is that the acidulated fluoride-phosphate does not by this method reach the preclinically carious pit and fissure lesions.

We believe, however, that smooth surface lesions of newly erupted permanent teeth may be retarded, if not prevented, by this technique. A further study embracing more than 1,000 children is now in progress. The subjects of this investigation were in grade 7 and approximately 12 years old at the commencement of the study. We plan to continue this investigation for two or three years. In this second study an acceptable flavouring

agent has been added to the placebo and test solutions.

SUMMARY

Pupils of grade 1, and in the second year of the study of grade 2, carried out a maximum of nine supervised toothbrushing drills in the classroom using either a placebo of distilled water or an acidulated fluoride-phosphate solution.

After one year there was no statistically significant difference between these two groups in respect to the caries increment of deciduous tooth surfaces. In this period, however, the average increment of carious permanent tooth surfaces for the control group was 2.6 and for the experimental group was 1.6, being a reduction of 38.5 per cent.

After two years there was a statistically significant difference between the average increment of carious permanent tooth surfaces, being 6.0 for the control group and 5.1 for the experimental group. This, however, is only a reduction of 15.0 per cent. Nevertheless, the absolute difference between the two groups was virtually maintained.

A further study is in progress to evaluate the effectiveness of this technique when utilized by older children.

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1. Bullen, D. C. T., McCombie, F. and Hole, L. W. One year effect of supervised toothbrushing with an acidulated fluoride-phosphate solution. *J. Canad. D. A.* 31:231, 1965.
2. Brudevold, F., Savory, A., Gardner, D. E., Spinelli, M. and Speirs, R. Study of acidulated fluoride solutions—I. In vitro effects on enamel. *Arch. Oral Biol.* 8:167, 1963.
3. Pameijer, J. H. N., Brudevold, F. and Hunt, E. E., Jr. Study of acidulated fluoride solutions—III. Cariostatic effect of repeated topical sodium fluoride applications with and without phosphate: a pilot study. *Arch. Oral Biol.* 8:183, 1963.
4. Wellock, W. D. and Brudevold, F. Study of acidulated fluoride solutions—II. The caries inhibiting effect of single annual topical applications of an acidic fluoride and phosphate solution. A two year experience. *Arch. Oral Biol.* 8:179, 1963.
5. Berggren, Helge and Welander, Erik. Supervised tooth brushing with a sodium fluoride solution in 5,000 Swedish school children. Results and analysis of procedures. *Acta. Odont. Scandinavica* 18:209, 1960.
6. Bibby, B. G. and Averill, H. M. Caries control through phosphates. *J. D. Res.* 42:477, 1963.

1963 Survey of Dental Practice

3. Gross income and expenses

Enquête de 1963 sur la profession dentaire

3. Revenus bruts et frais professionnels

Bureau of Economic Research

Bureau des recherches économiques

The average gross income figures in this chapter have been calculated by dividing, by the number of practitioners involved, the total receipts from practice of all dentists in full-time private practice and of those part-time salaried dentists who spent 30 or more hours per week in private practice. Mean average expenses were arrived at in the same manner using all expenses of operating dental practices in 1963.

The average gross income of all dentists in practice in Canada during 1963 was \$27,723. Mean expenses amounted to \$12,475, or 45 per cent of receipts from practice. Receipts from dental practice rose 90 per cent between 1953 and 1963. In this same 10 year period, expenses increased 86 per cent. Expenses as a percentage of gross income have not changed significantly since 1953. They were 46 per cent then, decreased to 43 per cent in 1958 and rose again to 45 per cent in 1963 (Figure 1).

Dans le présent rapport, les chiffres relatifs aux revenus ont été obtenus en divisant par le nombre total de praticiens, la somme des revenus de tous les dentistes qui exerçaient à plein temps dans un cabinet privé, et de tous ceux qui travaillaient à mi-temps à salaire fixe, et pratiquaient dans un cabinet dentaire privé une trentaine d'heures par semaine ou davantage. Les chiffres correspondant à la moyenne des frais ont été établis de la même manière, et sont basés sur le total des frais professionnels encourus par les praticiens au cours de l'année 1963.

D'après les résultats obtenus, le revenu brut de tous les dentistes qui ont exercé leur profession au Canada durant l'année 1963 s'élevait en moyenne à \$27,723.00. La moyenne des frais égalait d'autre part, \$12,475.00, soit 45 pour cent des revenus professionnels. Ce qui signifie que de 1953 à 1963 les revenus ont augmenté de 90 pour cent, et les frais de 86 pour cent. En tant que pourcentage des revenus, les

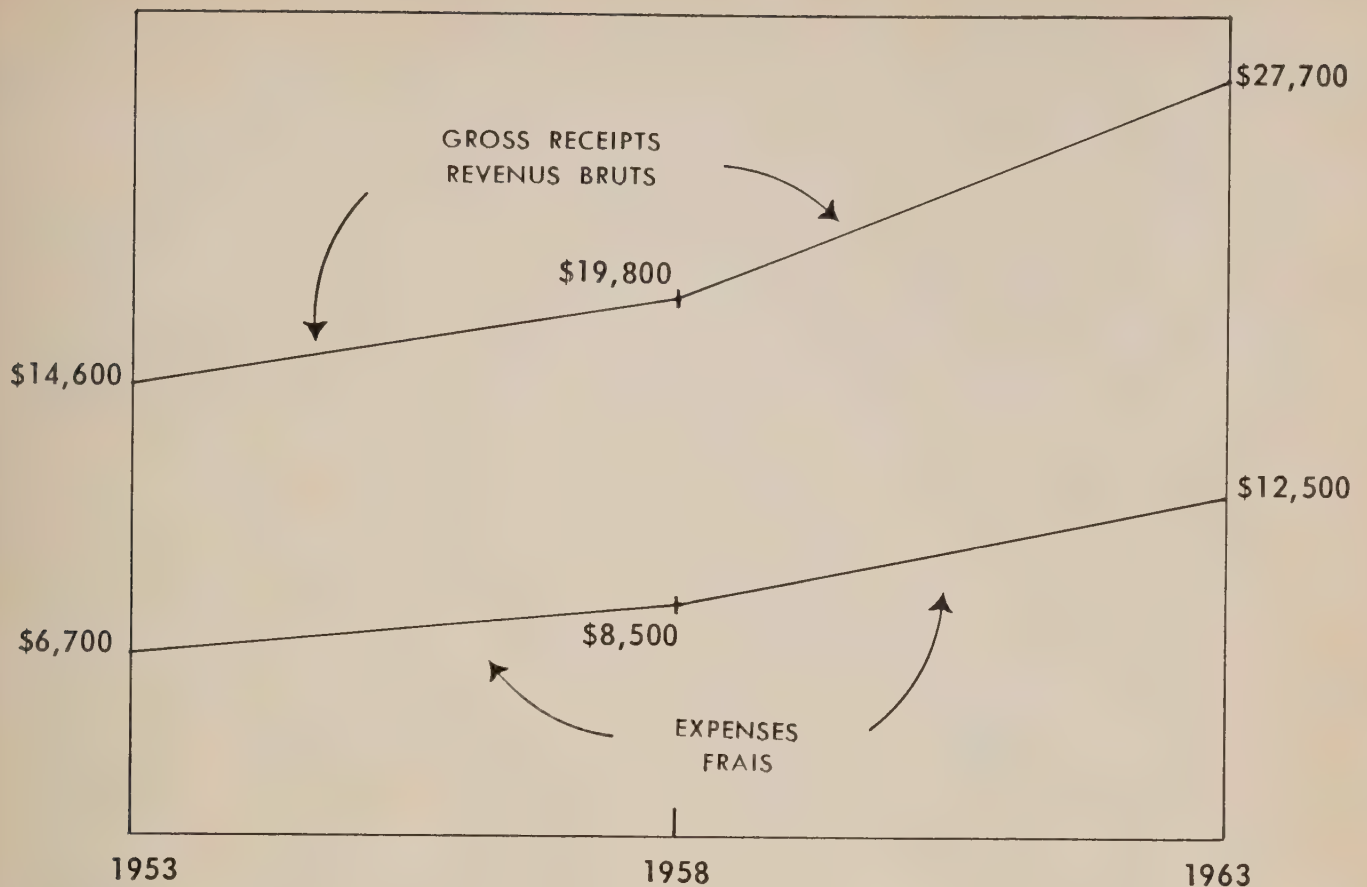


FIGURE 1 In 10 years gross receipts from dental practice rose 90 per cent while expenses rose 86 per cent • En l'espace de 10 ans les revenus bruts des dentistes ont augmenté de 90 pour cent, alors que les frais n'ont augmenté que de 86 pour cent.

PROVINCIAL GROSS INCOMES VARY FROM \$19,800 TO \$30,800

Gross incomes in the five regions of Canada were highest in British Columbia and the Prairie provinces and lowest in Quebec and the Atlantic provinces. The Ontario region was in the middle. Expenses followed a somewhat similar pattern. Expenses as a percentage of gross income equalled the national figure of 45 per cent in Quebec, Ontario and British Columbia, were a fraction higher in the Prairie provinces (46 per cent) and lower in the Atlantic provinces (43 per cent) (Figure 2).

When the provinces are considered separately, gross incomes varied from a high of \$30,769 in British Columbia to \$19,785 in Prince Edward Island. These same provinces shared the extremes in dental expenses—\$13,934 in British Columbia and \$6,991 in Prince Edward Island. Gross income in Manitoba was well below the figures for the other Prairie provinces while Newfoundland's gross income was more than \$6,000 above the average for the Atlantic region as a whole.

frais n'ont toutefois pas subi de fluctuation notable. En 1953, ils en représentaient les 46 pour cent; en 1958, les 43 pour cent; et enfin, en 1963, les 45 pour cent.

A L'ÉCHELLE PROVINCIALE, LES REVENUS BRUTS VARIENT ENTRE \$19,800 ET \$30,800

Une comparaison des revenus bruts dans les cinq régions du Canada indique le taux le plus élevé pour la Colombie britannique et les provinces des Prairies, le plus bas pour le Québec et les provinces de l'Atlantique, et situe l'Ontario entre les deux. Il en va à peu près de même en ce qui concerne les taux de frais. En tant que pourcentage des revenus bruts, ceux-ci égalent 45 pour cent au Québec, en Ontario et en Colombie britannique; 46 pour cent dans les provinces des Prairies, soit un taux à peine supérieur; et enfin 43 pour cent dans les provinces de l'Atlantique, soit un taux légèrement inférieur.

Si l'on considère chacune des provinces séparément, les revenus varient entre un maximum de \$30,769.00 pour la Colombie

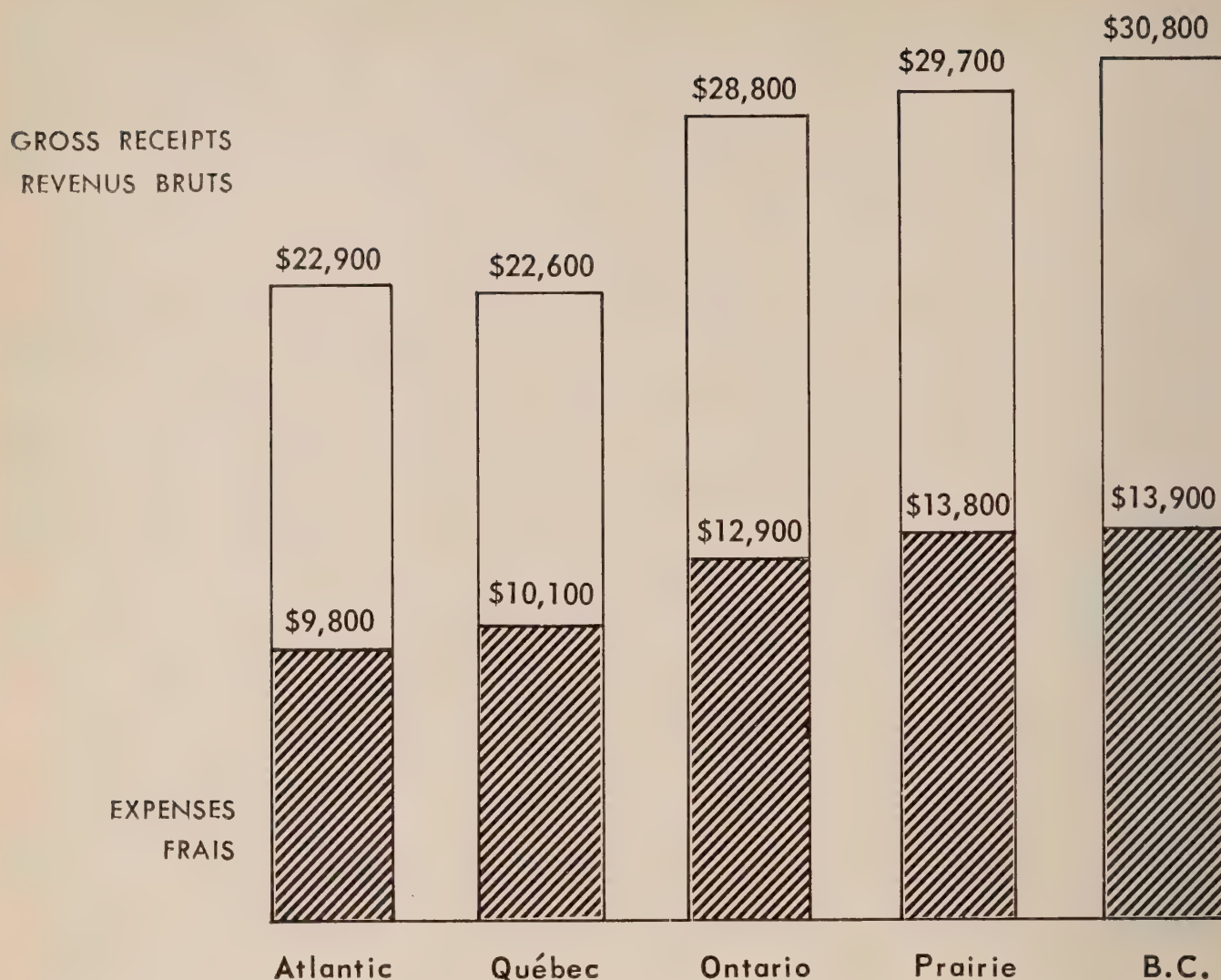


FIGURE 2 Gross receipts and expenses are higher in western regions • Revenus bruts et frais professionnels sont plus élevés dans les régions de l'Ouest.

Expenses as a percentage of gross were higher in Manitoba (47.6 per cent) than in any other province. Prince Edward Island's comparable figure (35.3 per cent) may well be unrealistic because of the relatively small number of returns coming from that province.

There are marked differences in the growth rates of gross income among the 10 provinces. Over the 10 years from 1953 to 1963, Newfoundland's gross income grew twice as fast as Prince Edward Island's. Other provinces experiencing greater than average increases were Manitoba, Nova Scotia and Ontario.

During this same 10 year period, expenses have more than doubled in Ontario and Quebec and have very nearly doubled in Manitoba and New Brunswick. In all other provinces, the rates of increase have been less than the national average of 86 per cent. In three provinces,

britannique, et un minimum de \$19,785.00 pour l'Ile du Prince-Edouard. Ces deux provinces se partageant encore une fois les extrêmes sur le plan des frais professionnels — Colombie britannique: \$13,934.00; Ile du Prince-Edouard: \$6,991.00. Les chiffres relatifs aux revenus bruts sont bien plus bas pour le Manitoba que pour les autres provinces des Prairies, alors que ceux de Terre-Neuve excèdent de plus de \$6,000.00 la moyenne calculée pour l'ensemble des provinces de l'Atlantique.

Les frais, en tant que pourcentage des revenus, sont plus élevés au Manitoba (47.6 pour cent) que dans toute autre province. Par contre, ceux de l'Ile du Prince-Edouard (35.3 pour cent) semblent trop bas comparés au taux d'impôt relativement réduit reçu de cette province.

Les rythmes d'augmentation des revenus bruts diffèrent nettement d'une province à l'autre. De 1953 à 1963, les revenus de la province de Terre-Neuve se sont accrus

TABLE 1 Dentists in smaller cities gross \$4,200 less than dentists in larger cities • Les dentistes des petites villes gagnent \$4,200 de moins que ceux des plus grandes villes.

City size		Gross receipts	Expenses
Population de la ville		Revenus bruts	Frais
Under Moins de	15,000	\$24,500	\$10,900
15,000	or over ou plus	28,700	13,000

Quebec, Ontario and Saskatchewan, expenses have risen at a greater rate than receipts from practice.

EXPENSES HIGHER IN LARGER CITIES

There was a general tendency for gross incomes to rise with city size. Mean gross income was \$17,115 for dentists living in communities of less than 1,000 inhabitants and \$23,986 for those in towns of between 1,000 and 2,500 people. It reached a peak of \$30,596 for dentists in cities of 250,000 to 500,000 population but declined to \$27,572 for those living in the largest cities.

Expenses varied from a low of \$7,734 for dentists in communities of under 1,000 to a high of \$14,018 in cities in the 250,000-500,000 size category. Expenses maintained a fairly constant ratio to receipts regardless of the size of the city in which the dentist lived. As a percentage of gross income, they varied less than four percentage points, from a low of 42.6 to the 46.5 per cent experienced in cities of over 500,000 people.

EXPENSES OF YOUNGEST DENTISTS
EQUAL 50 PER CENT OF GROSS

Mean gross income rose from \$24,182 received by dentists 25-29 years of age to \$31,591 grossed by dentists 10 years older. Thereafter, it declined in each succeeding age group. Dentists in the 55-59 age group grossed slightly less than their confreres 30 years younger. Older dentists grossed much less—\$22,019 at 60-64 years and \$16,773 at 65 to 69.

deux fois plus rapidement que ceux de l'Ile du Prince-Edouard. Parmi les autres provinces qui ont accusé de fortes hausses, citons le Manitoba, la Nouvelle-Ecosse et l'Ontario.

Au cours de cette même période, les frais ont plus que doublé en Ontario et au Québec, et presque doublé au Manitoba et au Nouveau-Brunswick. Mais dans toutes les autres provinces le taux d'augmentation est resté inférieur à la moyenne de 86 pour cent calculée pour l'ensemble de la nation. Ajoutons d'autre part que dans les trois provinces du Québec, de l'Ontario et de la Saskatchewan, les frais ont augmenté plus rapidement que les revenus professionnels.

LES FRAIS SONT PLUS ÉLEVÉS
DANS LES GRANDES VILLES

Il semble qu'en général, les revenus bruts augmentent avec l'importance de la ville. En moyenne, ils sont de \$17,115.00 pour les dentistes pratiquant dans des localités de moins de 1,000 habitants, et de \$23,986.00 pour ceux qui exercent dans des villes de 1,000 à 2,500 habitants. Ils s'élèvent jusqu'à \$30,596.00 pour les dentistes situés dans des villes de 250,000 à 500,000 habitants, mais tombent à \$27,572.00 pour ceux qui vivent dans de plus grandes villes.

Les frais varient entre un minimum de \$7,734.00 pour les dentistes des localités de moins de 1,000 habitants, et un maximum de \$14,018.00 pour ceux des villes de 250,000 à 500,000 habitants. Le pourcentage des frais par rapport aux revenus s'est toutefois maintenu à un niveau assez stable, et ce, indépendamment de l'ampleur de la ville où s'exerce la profession. En effet, entre le minimum de 42.6 pour cent et le maximum de 46.5 pour cent encouru par les villes de plus de 500,000 habitants, il y a à peine 4 pour cent de différence.

LES FRAIS PROFESSIONNELS ÉGALENT 50 POUR
CENT DU REVENU PARMI LES JEUNES
DENTISTES

En moyenne, le revenu brut des dentistes âgés de 25 à 29 ans égale \$24,182.00.

Expenses followed the same pattern. As a percentage of gross income, they were highest for dentists 25 to 29 years (49.5 per cent) and for those 75 years and older (47.9 per cent). Between these age groups, the ratio of expenses to receipts varied only from 42.5 to 45.0 per cent.

In the past 10 years, the gross incomes of dentists in all age groups except the 75 and over age group have increased. Dentists who were 35 to 39 years old in 1963 (25 to 29 years in 1953) experienced the most rapid rise. Their gross incomes have increased two and a half times during the past 10 years. Even the group of dentists who were 70-74 years of age in 1963 had gross incomes 26 percent above the incomes they grossed when they were 60-64 years in 1953. Increases for younger age groups were all higher (Figure 3).

Il atteint \$31,591.00 pour ceux qui ont 10 ans de plus, et baisse ensuite régulièrement pour chacun des groupes plus âgés. Pour les dentistes âgés de 55 à 59 ans il est légèrement inférieur à celui de leurs confrères 30 ans plus jeunes. Pour les dentistes encore plus âgés, il est plus bas — 60 à 64 ans: \$22,019.00; 65 à 69 ans: \$16,773.00.

Sur le plan des frais, la situation est à peu près la même. En tant que pourcentage des revenus, le taux des frais atteint son maximum pour les dentistes âgés de 25 à 29 ans (49.5 pour cent) et son minimum pour ceux de 75 ans et plus (47.9 pour cent). Entre ces deux groupes il n'a varié que de 42.5 à 45.0 pour cent.

Au cours des 10 dernières années le taux du revenu a augmenté pour tous les groupes, à l'exception de celui âgé de 75

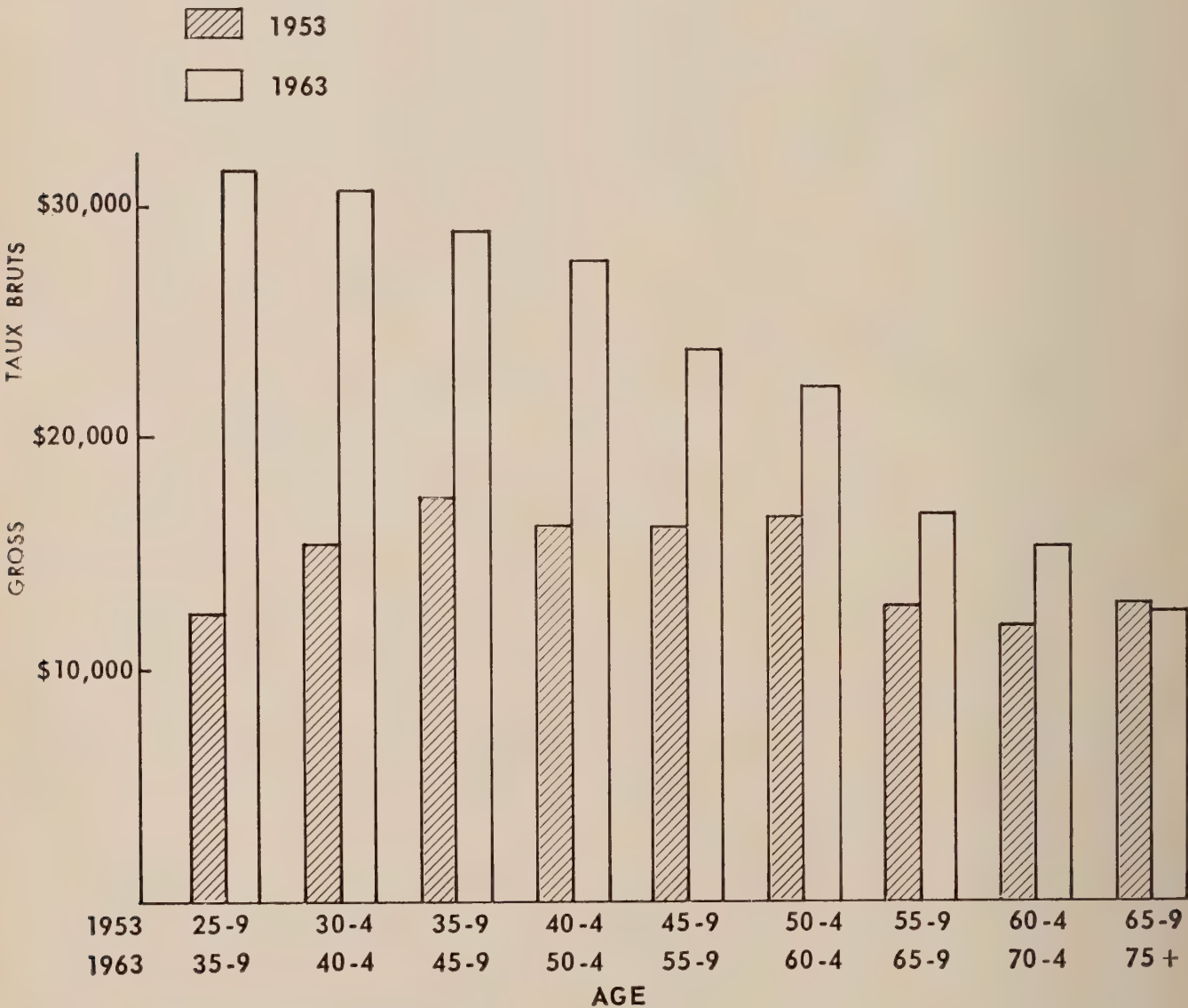


FIGURE 3 How gross receipts vary with age, now and 10 years ago • Les taux de revenu varient avec l'âge: comparaison entre ceux de 1953 et ceux de 1963.

DENTISTS IN PRACTICE 10 TO 14 YEARS GROSS MOST

Dentists who had been in practice 10 to 14 years grossed more than all other dentists (\$31,978) (Figure 3). Gross incomes of 1962 graduates averaged \$20,394 in 1963. Graduates who had been in practice one year longer grossed one-fifth more (\$24,670). Gross incomes continued to climb until the graduating classes of 1949-53 were reached and then declined fairly steadily to the \$15,213 grossed by dentists who graduated during the first world war.

Expenses were 53.5 per cent of gross for dentists in their first year of practice. They declined for dentists from each preceding graduating class until the national average of 45.0 per cent was attained by those dentists who had graduated five to nine years before the survey.

SOLO PRACTITIONERS GROSS \$27,500

Dentists in partnerships reported the highest average gross income. The mean for these practitioners was \$31,700. Those dentists who participated in cost-sharing arrangements grossed slightly more than dentists in solo practice—\$28,295 compared to \$27,475.

The expenses of dentists in partnerships were higher both absolutely and in proportion to gross income than the expenses of dentists in either solo practice or cost-sharing arrangements. Their expenses were \$14,954 or 47.2 per cent of their gross income. Expenses of dentists sharing costs were \$700 more than the average for solo practitioners. Expenses as a percentage of gross were 45.9 per cent for the cost-sharing dentists and 44.8 per cent for those in solo practice. As more dentists in partnerships and cost-sharing arrangements employed hygienists, technicians, assistants and secretary-receptionists than did dentists in solo practice, it is not surprising that their expenses, as well as their gross incomes, were higher than the average for solo practitioners.

ans et plus. Ce sont les dentistes âgés de 35 à 39 ans en 1963 (soit 25 à 29 ans en 1953) qui ont connu la hausse la plus rapide. Pendant cette période leur revenu a pris deux fois et demie plus d'ampleur. Même le groupe de dentistes âgés de 70 à 74 ans en 1963, a connu une augmentation de revenu depuis 1953 (26 pour cent). Toutefois les taux d'augmentation pour les groupes moins âgés sont tous nettement plus élevés.

REVENUS PLUS ÉLEVÉS POUR LES DENTISTES AYANT 10 À 14 ANNÉES DE PRATIQUE

Le taux de revenu des dentistes ayant 10 à 14 ans de pratique est le plus élevé d'entre tous (\$31,978.00). Les dentistes diplômés en 1962 ont atteint \$20,394.00 en 1963. Ceux qui ont terminé une année plus tôt touchaient déjà un cinquième de plus (\$24,670.00). Ces taux ont grimpé ainsi jusqu'au groupe des dentistes ayant reçu leur diplôme entre 1949 et 1953. Ils ont commencé ensuite à baisser de façon plus ou moins régulière, jusqu'à atteindre le niveau de \$15,213.00: revenu des dentistes qui ont été diplômés lors de la première guerre mondiale.

Pour les dentistes en première année d'exercice, les frais professionnels constituent 53.5 pour cent de leurs revenus, mais ce taux baisse ensuite avec le nombre d'années de pratique jusqu'à en arriver à 45.0 pour cent: taux atteint par les dentistes qui ont obtenu leur diplôme cinq à neuf années avant que cette enquête ne soit entreprise.

LE REVENU DES DENTISTES QUI TRAVAILLENT SEULS S'ÉLÈVE À \$27,500

Les dentistes travaillant avec un ou plusieurs associés ont indiqué la moyenne de revenu la plus élevée: \$31,700.00. Ceux qui procèdent à un partage de frais avec d'autres gagnent un peu plus que ceux qui travaillent seuls: \$28,295.00 par rapport à \$27,475.00.

Les frais des dentistes travaillant en association sont plus élevés — aussi bien en général, que comparés à leur taux de revenu, — que ceux des dentistes travail-

TABLE 2 Comparison of gross receipts of specialists and general practitioners, in 1953 and 1963 • Comparaison entre des revenus bruts des spécialistes et des omnipraticiens en 1953 et 1963.

Practitioner Dentistes	Gross receipts Revenus bruts	
	1953	1963
General practitioner Omnipraticien	\$14,000	\$27,300
Oral surgeon Chirurgien-dentiste	16,600	38,500
Orthodontist Orthodontiste	21,000	35,700
Periodontist Périodontiste	15,700	32,900

SPECIALISTS GROSS \$9,000 MORE THAN G.P.'S

Specialists as a whole averaged almost \$9,000 more in receipts than general dental practitioners. While the latter grossed \$27,338, oral surgeons grossed \$38,486, orthodontists \$35,707 and periodontists \$32,857 (Table 2).

The expenses of the specialists were about \$3,600 higher than the expenses of general practitioners but as a percentage of gross they were slightly lower (43.8 per cent compared to 45.1 per cent). The highest ratio of expenses to gross income was reported by the oral surgeons (48.1 per cent) and the lowest by orthodontists (41.6 per cent).

In both the five year periods 1953-58 and 1958-63, the gross incomes of orthodontists have increased the most slowly followed by those of general practitioners and periodontists, while oral surgeons registered the largest increase. Increases over the 10 years, 1953-63, were 87 per cent for general practitioners, 132 per cent for oral surgeons, 70 per cent for orthodontists and 109 per cent for periodontists.

This report is condensed from *Survey of Dental Practice, 1963*, published by the Bureau of Economic Research.

lant seuls, ou suivant un plan de partage des frais. Leurs frais se chiffrent à \$14,954.00, c'est-à-dire 47.2 pour cent de leur revenu. Les frais des dentistes partageant les frais dépassent de \$700.00 la moyenne de ceux encourus par les dentistes qui travaillent seuls. En tant que pourcentage du revenu, les frais représentent 45.9 pour cent pour les dentistes qui partagent les frais, et 44.8 pour cent pour les dentistes qui travaillent seuls. Il n'est guère surprenant que les revenus et les frais soient plus élevés pour les dentistes qui partagent les frais ou travaillent avec des associés, puisque ceux-ci ont davantage besoin d'employer des hygiénistes, des techniciens, des assistantes et des secrétaires-réceptionnistes.

LES SPÉCIALISTES GAGNENT \$9,000 DE PLUS QUE LES OMNIPRATICIENS

Dans l'ensemble, les dentistes spécialisés gagnent près de \$9,000.00 de plus que les omnipraticiens. Alors que ces derniers gagnent \$27,338.00, les chirurgiens atteignent \$38,486.00, les orthodontistes \$35,707.00 et les périodontistes \$32,857.00.

Les frais des spécialistes dépassent ceux des omnipraticiens de près de \$3,600.00. Toutefois, en tant que pourcentage de leur revenu, ils représentent un taux légèrement moindre (43.8 pour cent comparé à 45.1 pour cent). Le taux des frais le plus élevé est accusé par les chirurgiens (48.1 pour cent), et le plus bas, par les orthodontistes (41.6 pour cent).

L'accroissement du taux des revenus pour les périodes de 1953 à 1958 et 1958 à 1963 a été le plus lent chez les orthodontistes; viennent ensuite les omnipraticiens et les périodontistes. Il s'est fait le plus rapidement parmi les chirurgiens. Au cours de cette période de 10 ans, 1953 à 1963, les divers taux d'accroissement ont été de 87 pour cent pour les omnipraticiens, de 132 pour cent pour les chirurgiens-dentistes, de 70 pour cent pour les orthodontistes, et de 109 pour cent pour les périodontistes.

Ce communiqué est un résumé de *l'Enquête de 1963 sur la profession dentaire* publiée par le Bureau des recherches économiques.

Independent Medicare Limited in Britain?

The off-and-on battle between Britain's medical profession and the Minister of Health has taken a new twist. Last summer's negotiations between the two parties produced a semblance of agreement on some of the outstanding grievances: establishment of a corporation to finance the acquisition or improvement of general practice premises and equipment; direct governmental contribution toward expenditures on ancillary help; reduction in clerical work. But the government and the profession remain poles apart over two key issues: methods of remuneration (the physicians want fee-for-service payment) and ways of discouraging the British public from exercising its present right to call upon a physician at any time of the night or day without having to make any direct payment.¹

Whether the profession and the government will reconcile these differences only the future can tell. Meanwhile, the British Medical Association has prudently prepared itself for the consequences of continuing disagreement. Faced with the possibility of a complete rupture in its relations with government (the BMA still holds 18,000 undated signed letters of resignation from the National Health Service), the profession cast about for an alternative way to provide voluntary medical insurance in Britain. The answer has been to back a private scheme to be administered by a profession-sponsored medical service corporation called Independent Medical Services Limited. Registered as an independent company with Britain's Board of Trade, the new organization nevertheless has familiar faces on its board, including that of Dr. I. M. Jones, chairman of the BMA Private Practice Committee.^{2, 3}

To provide adequate financing, each of Britain's 23,000 general medical practitioners was asked to contribute £10 (\$30) as a non-repayable registration fee to IMS to get the scheme off the ground. It was estimated that if only 8,000 responded, thus providing £80,000, the scheme could start in selected areas at an early date.

The BMA has taken great pains to point out that the establishment of an alternative medical service, though coincident with the negotiations over the NHS, does not necessarily mean that these negotiations are going badly. Even if the outcome were successful, it is argued that existence of the alternative scheme side by side with the NHS would constitute an effective external yardstick and stimulus for the state-organized service.

But despite promising early indications of support from general practitioners, IMS had only collected £42,000 by October 30, an amount which is inadequate to launch the scheme.⁴ And even if sufficient capital were forthcoming, the

BMA would have the less easy task of securing the sympathetic reception of the plan by the public. It may well be that in many areas patients would prefer to take part in such a private scheme if it were less hedged round with restrictions and more acceptable to the physicians. If this were so, it would be for the public itself through Parliament to seek ways of opting out of at least part of their expenditure on the state's National Health Service.

What is interesting to a transatlantic observer is that after 18 years of experience with the NHS, Britain's physicians are now clamouring for those very features of voluntary prepaid health care — fee-for-service, patient participation, opting out — which we may lose if a monolithic government medicare scheme were to eventuate in this country.

1. Towards a new contract. *Brit. M.J.* 2:889, October 16, 1965. Editorial.
2. An independent medical service. *Brit. M.J.* 2:831, October 9, 1965. Editorial.
3. I. M. Jones. Independent Medical Services Ltd.: letter from chairman. *Brit. M.J. Supp.* 2:152, October 9, 1965.
4. Idem. Independent Medical Services Ltd. *Brit. M.J.* 2:1057, October 30, 1965. Correspondence.

Personnel enseignant

La Faculté de chirurgie dentaire de l'Université de Montréal vient de faire connaître au public les grandes lignes de son programme d'expansion. On dispose d'un peu plus de \$2 millions que l'on dépensera en 15 mois pour doter la Faculté d'installations aussi modernes que l'on puisse rêver: cliniques générales, cliniques spécialisées, laboratoires, salles de cours, appareils de télévision. On agrandit les édifices, on double la superficie de la Faculté. Il y aura de la place pour un plus grand nombre d'étudiants; on compte d'ici quelques années augmenter le nombre des diplômés de 60 pour cent, rejoignant à peu près le nombre maximum au-delà duquel une école dentaire ne peut enseigner de façon efficace.

Il faut assurément féliciter les dirigeants de la Faculté et de l'Université pour leur prévoyance et leur initiative, car ces travaux d'expansion représentent une entreprise énorme qui est menée rondement et avec une grande efficacité. C'est à juste titre que nous pouvons dès maintenant être fiers des installations de notre Faculté.

Il ne faudrait cependant pas s'arrêter à ne considérer que les briques et le ciment. Il ne faudrait pas considérer l'Université comme un édifice, alors qu'elle doit être d'abord et avant tout une assemblée de penseurs.

Pendant que l'on dépense \$2 millions pour doubler la superficie des édifices qu'emploieront un plus grand nombre d'étudiants, combien dépense-t-on pour perfectionner et augmenter l'équipe de penseurs et de chercheurs? Sans elle pourtant, les édifices n'ont aucun sens.

Il ne faudrait pas commettre l'erreur de voir là un problème purement local. Le manque de personnel enseignant dans les facultés dentaires est un problème général, aussi bien aux Etats-Unis qu'au Canada. Après la création de la faculté dentaire de la Colombie britannique, de celle de Western Ontario, de celle du Manitoba, on annonce la formation d'une autre faculté en Saskatchewan. Et l'on parle de plus en plus d'en créer une nouvelle à l'Université Laval.

Les facultés se multiplient certes beaucoup plus vite que le personnel enseignant disponible, ce qui crée un état d'urgence. Cette crise est encore

plus aiguë au Canada français. Notre Faculté dentaire étant de pensée américaine et d'expression française ne peut que difficilement aller chercher au loin ses professeurs.

La qualité de la profession de demain sera fonction directe de la célérité avec laquelle nous saurons régler le problème que pose cette carence de personnel enseignant dans nos facultés dentaires. Tous les organismes qui souhaitent le bien de la profession dentaire devraient faire un effort pour recruter les individus susceptibles de s'intéresser à l'enseignement, et pour mettre à leur disposition les fonds nécessaires pour acquérir une formation solide.

Les facultés dentaires de leur côté, devraient s'efforcer de créer une atmosphère d'enthousiasme favorable au travail. En s'élevant au-dessus des petites questions de personnalité et d'ambition, pour ne considérer que le plus grand bien de l'enseignement, elles pourraient attirer chez-elles toutes les bonnes volontés disponibles et les y garder, quelles que soient les modalités de leurs contributions.

La profession dentaire doit faire face aujourd'hui à un grand nombre de problèmes. Celui de la crise du personnel enseignant est certes un des plus aigus, car ses répercussions s'étendront très loin dans l'avenir. C'est seulement si toute la profession veut bien prendre conscience de la gravité de la situation que nous pourrons espérer y remédier.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

Cours pour assistantes dentaires à l'Université de Montréal

Au rédacteur:

Le 26 août dernier, le Service des relations extérieures de l'Université de Montréal émettait par son bureau de presse un communiqué sur un cours de formation pour assistantes dentaires à l'Université, dont vous trouverez copie ci-jointe.

On a porté à mon attention depuis, que le *Journal de l'Association dentaire canadienne* avait publié à ce sujet une nouvelle comportant quelques inexactitudes. Notamment, on donnait au docteur Jacques Bélanger, directeur de ces cours, un assistant qu'on rendait également responsable de tous les cours de perfectionnement à la Faculté.

Vous pourrez évidemment constater à la lecture du communiqué, que le docteur Jacques Bélanger assumait seul la direction du nouveau cours. Par ailleurs, le responsable des cours de perfectionnement donnés à la Faculté est le docteur Gérard de Montigny, et non pas celui qu'erronément on désignait comme tel.

L'Université, et en particulier la Faculté de chirurgie dentaire, apprécie toute mention que vous pouvez faire de nos activités, et nous vous remercions de nous faire la part généreuse. Dans l'intérêt de votre publication et pour assurer un caractère d'authenticité et d'exactitude aux nouvelles que vous publiez, vous tireriez peut-être profit à entrer en communication avec notre bureau lorsqu'on vous transmet des nouvelles qui n'émanent pas de notre Service. Nous serons à votre entière disposition pour en vérifier l'exactitude et faciliter votre travail.

N'hésitez donc pas à me faire signe à la moindre occasion, et croyez, cher docteur Pelletier, à l'assurance de mes très bons sentiments.

L'adjoint au recteur et directeur des relations extérieures
André Bachand

(NDLR) Nous remercions monsieur Bachand de son aimable collaboration et des informations qu'il a bien voulu nous faire parvenir. Nos lecteurs trouveront dans la chronique des Actualités dentaires, sous la rubrique Facultés dentaires canadiennes, le texte intégral du communiqué émis par le Service des relations extérieures de l'Université de Montréal au sujet du cours de formation pour assistantes dentaires, qu'offre le service de l'Extension de l'enseignement de l'Université de Montréal.

Dental Health of BC Indians

To the Editor:

I write with regard to Dr. Sumner's article in the June 1965 Journal. Dr. Sumner reports his finding that 20 per cent of the lower first molars of the Salish and Bella Coola Indians had a trifurcated root whereas the incidence was slightly less than 10 per cent in the Carrier Band. He then states that "... no comparable statistics relating to this anomaly exist in the literature."

I wish to call to your attention the book by P. O. Pedersen, *The East Greenland Eskimo*, (C. A. Reitzels Forlag, Copenhagen, 1949), in which the author reports the incidence of three-rooted lower molars in Greenland Eskimos to be eight out of 64 cases. This would be an incidence of 12.5 per cent. Pedersen's extensive report and

lengthy review of the literature also mentions a report by E. A. Tratman (Three-rooted Lower Molars in Man and Their Racial Distribution. Brit. D.J. 64:264, 1938) in which that author cites the highest incidence of three-rooted lower molars as occurring in the Chinese. Commenting on Tratman's work and his own findings, Pedersen says (p. 144): "Once again we come across a dental feature hitherto overlooked and apparently insignificant, which is strongly suggestive of racial affinity between Asiatic Mongols and Greenland Eskimos."

Dr. Sumner has apparently unknowingly provided additional evidence in his studies of the BC Indians which suggests the strong possibility of racial affinity of these Indians with some groups of Eskimos and with Mongols.

C. R. Castaldi, DDS, MSD,
Faculty of Dentistry, University of Manitoba,
Winnipeg 3, Man.

To the Editor:

Dr. Castaldi very rightly corrects my statement that "no comparable statistics relating to this anomaly exist in the literature" in reference to the three-rooted mandibular first molar. I became aware of this error since receiving a communication from Professor Pedersen soon after publication of my article and have since delved extensively into the literature in an endeavour to find further references to this subject. So far none have rewarded my search and I feel that Dr. Castaldi may be right in his inference that no previous survey has been carried out concerning this anomaly in the North American Indian and consequently no mention would have been made of this in studies of the racial origins of the Indian and Eskimo peoples.

I feel that this may be a point of some minor dental-anthropological significance as the occurrence of this phenomenon in the Eskimo, the Indian and the Asiatic Mongol appears to be very definite and is seen in roughly equivalent percentages. Accordingly, I am corresponding with the Department of Anthropology of the University of Toronto in order to find out if these related findings are of any interest in that sphere.

Roger Sumner, BDS, DDS,
170 St. George Street, Toronto, Ont.



ary B. Myers

**Preliminary Program • 65th Annual Meeting
Canadian Dental Association • June 12-15, 1966
Halifax**

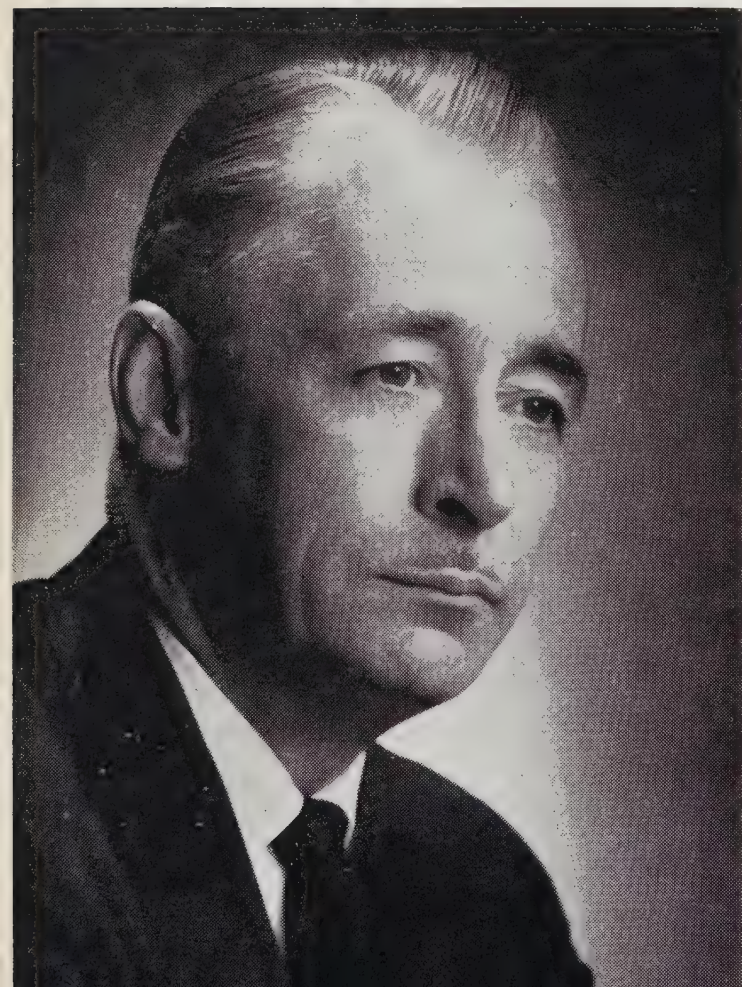
**Programme préliminaire • 65ème Congrès annuel
Association dentaire canadienne
du 12 au 15 juin 1966**

PRESIDENT'S MESSAGE

MESSAGE DU PRESIDENT

It is my privilege to extend an invitation to all members of the Canadian Dental Association to attend the national convention to be held in Halifax, June 12-15, 1966. The convention chairman, W. B. Coleman, and his committee have been at work for many months and have arranged a scientific program which will be of value to all. The social program emphasizes those pleasures and entertainments characteristic of this part of the country. I can assure everyone from all parts of Canada a very warm welcome and look forward to greeting you at the convention.

Il me fait plaisir d'inviter tous les membres de l'Association dentaire canadienne à se rendre au congrès national qui se tiendra à Halifax du 12 au 15 juin 1966. Le président du congrès, le docteur W. B. Coleman, et son comité, travaillent ferme depuis plusieurs mois pour préparer un programme scientifique qui devrait intéresser tous les congressistes, ainsi qu'un programme social qui met en valeur les caractéristiques de la région. Les congressistes venant de tout le pays seront reçus avec la plus grande cordialité et j'espère avoir le plaisir de vous accueillir au congrès.



Philip S. Christie

GENERAL INFORMATION • RENSEIGNEMENTS

Board of Governors Meeting

The annual meeting of the Board of Governors of the Canadian Dental Association will be held at the Nova Scotian Hotel, Halifax, beginning at 9.30 a.m. on Wednesday, June 8 and continuing through Saturday, June 11, 1966. The meeting is open to all members of the Association who are urged to attend and participate in the deliberations.

National Convention

The national convention of the Canadian Dental Association will be held in the Nova Scotian Hotel, Halifax, beginning Sunday, June 12 and continuing through Wednesday, June 15, 1966.

P. S. CHRISTIE—President
W. G. McINTOSH—Secretary

Events for Ladies

Failte !

One hundred thousand welcomes to the land of the 'Bluenose.' Our leisurely program is planned with true Maritime hospitality to the fore. The wives of Nova Scotian dentists anticipate with pleasure receiving old friends and making many new ones.

BARBARA CHRISTIE—Honorary Chairman
LAL COLEMAN—Ladies Committee

Réunion du Conseil des Gouverneurs

La réunion annuelle du Conseil des Gouverneurs de l'Association dentaire canadienne aura lieu à l'hôtel Nova Scotian de Halifax du 8 au 11 juin 1966. Tous les membres peuvent assister à ces assemblées et prendre part aux délibérations; les dirigeants de l'Association les y invitent avec instance.

Congrès national

Le congrès national de l'Association dentaire canadienne aura lieu au même hôtel, du dimanche 12 juin, au mercredi, 15 juin.

P. S. CHRISTIE—Président
W. G. McINTOSH—Secrétaire

Programme des dames

Failte !

Mille bienvenues au pays du 'Bluenose.' Notre programme a été préparé selon l'authentique tradition d'hospitalité des provinces maritimes. Les épouses des dentistes de Nouvelle-Ecosse se feront un plaisir de renouer d'anciennes amitiés et d'en former de nouvelles.

BARBARA CHRISTIE—
Présidente honoraire
LAL COLEMAN—Comité des dames

Sunday June 12: registration in the morning; hospitality room open in the afternoon; gathering of the clans; refreshments.

Monday June 13: hospitality room open all day; welcoming coffee party in the morning; time for shopping, golf, etc. during the afternoon; lobster party in the evening.

Tuesday June 14: hospitality room open all day; 'Bluenose' cruise morning and afternoon; ladies luncheon.

Wednesday June 15: hospitality room open all day; mid-morning brunch and browse through historic old Citadel Hill fortifications and museums; CDA president's banquet and ball in the evening.

Dimanche, 12 juin: Le bureau d'inscription sera ouvert le matin; la salle de réception l'après-midi; réception et divertissements dans la soirée; rafraîchissements.

Lundi, 13 juin: La salle de réception sera ouverte toute la journée; on y servira le café le matin; l'après-midi sera libre pour emplettes, golf, etc.; dégustation de homard dans la soirée.

Mardi, 14 juin: La salle de réception sera ouverte toute la journée; excursion sur le 'Bluenose' le matin et l'après-midi; déjeuner des dames.

Mercredi, 15 juin: La salle de réception sera ouverte toute la journée; petit déjeuner tardif; promenade historique dans les fortifications et les musées de la Vieille Citadelle; banquet et bal du président de l'ADC dans la soirée.



PRELIMINARY PROGRAM • HORAIRE DU CONGRES

Sunday June 12

Afternoon—Registration
Evening—Gathering of the clans

Monday June 13

9:30 Dental Materials—R. W. Phillips, Indianapolis
11:00 Grieve Memorial Lecture—G. M. Anderson, Baltimore
12:30 Canadian Dental Association Luncheon — Installation of new president
2:30 Table clinics
6:30 Lobster party

Tuesday June 14

9:30 Prosthodontics — C. O. Boucher, Columbus
11:00 Dental Materials — R. W. Phillips, Indianapolis
12:30 City of Halifax—Nova Scotia Dental Association Luncheon
2:30 CDA Panel Presentation
3:30 Drug Therapy — P. R. Dumke, Detroit
Royal Canadian Dental Corps Reunion (time to be announced)

Wednesday June 15

9:30 Drug Therapy — P. R. Dumke, Detroit
11:00 X-ray Microscopy of Dental Pulp Vessels — R. L. de C. H. Saunders, Halifax
12:30 Government of Nova Scotia Luncheon
2:30 Prosthodontics — C. O. Boucher, Columbus
3:30 Examination and Diagnosis for Children—Norman Levine, Toronto
6:30 CDA President's Banquet and Ball

Dimanche, 12 juin

Après-midi—Inscription
Soir—Réception et divertissements

Lundi, 13 juin

9h.30 Matériaux dentaires—R. W. Phillips, Indianapolis
11h.00 Conférence du Mémorial Grieve—G. M. Anderson, Baltimore
12h.30 Déjeuner de l'Association dentaire canadienne—Installation du nouveau président
2h.30 Cliniques de table
6h.30 Dégustation de homard

Mardi, 14 juin

9h.30 Prothèse—C. O. Boucher, Columbus
11h.00 Matériaux dentaires—R. W. Phillips, Indianapolis
12h.30 Déjeuner offert par la ville de Halifax et la Société dentaire de la Nouvelle-Ecosse
2h.30 Colloque de l'ADC
3h.30 Pharmacologie et thérapeutique—P. R. Dumke, Détroit
Réunion pour les officiers du Corps dentaire royal canadien (l'heure en sera annoncée plus tard)

Mercredi, 15 juin

9h.30 Pharmacologie et thérapeutique—P. R. Dumke, Détroit
11h.00 Microscopie radiologique des vaisseaux de la pulpe—R. L. de C. H. Saunders, Halifax
12h.30 Déjeuner offert par le Gouvernement de la Nouvelle-Ecosse
2h.30 Prothèse—C. O. Boucher, Columbus
3h.30 Examen et diagnostic en pédodontie—Norman Levine, Toronto
6h.30 Banquet et bal du président de l'ADC

Specialty Sections and Groups Spécialités

Canadian Dental Association sections on oral surgery (Canadian Society of Oral Surgeons), orthodontics (Canadian Society of Orthodontists), prosthodontics (Canadian Academy of Prosthodontists) and dentistry for children (Canadian Society of Dentistry for Children) will also present scientific meetings.

The section on oral surgery has scheduled a two-day session June 13-14 at the Nova Scotian Hotel. Lecturer: P. R. Dumke, Detroit.

The orthodontic section will hold a three-day meeting at the same hotel. Lecturers: G. M. Anderson, Baltimore; J. D. Subtelny, Pittsford, New York; A. E. Eastwood, Halifax.

The Canadian Academy of Prosthodontists meets at the Nova Scotian on Saturday, June 11. Lecturer: C. O. Boucher, Columbus, Ohio.

The Canadian Society of Dentistry for Children will also sponsor a meeting in Halifax. Lecturer: Norman Levine, Toronto.

Two other special interest groups have announced meetings:

The Canadian Academy of Endodontists has scheduled a scientific and business meeting for Saturday, June 11. Lecturers: R. L. de C. H. Saunders, Halifax; M. B. Archambault, Benjamin Sedlezky, W. B. Donohue and H. M. Robichaud, Montreal.

The Canadian Academy of Restorative Dentistry will also meet on June 11.

Les sections de spécialité de l'Association dentaire canadienne auront aussi leurs réunions scientifiques. On prévoit la présence de la chirurgie buccale (Société canadienne de chirurgie buccale), de l'orthodontie (Société canadienne d'orthodontie), de la prosthodontie (Académie canadienne de prosthodontie), et de la pédo-dontie (Société canadienne de dentisterie pour les enfants).

La section de chirurgie buccale prévoit une séance de deux jours, les 13 et 14 juin, à l'hôtel Nova Scotian. Le conférencier sera P. R. Dumke de Détroit.

La section d'orthodontie tiendra une réunion de trois jours au même hôtel. Les conférenciers seront G. M. Anderson de Baltimore, J. D. Subtelny de Pittsford, New York, et A. E. Eastwood de Halifax.

La réunion de l'Académie canadienne de prosthodontie se tiendra à l'hôtel Nova Scotian, le samedi 11 juin. Le conférencier sera C. O. Boucher de Columbus, Ohio.

La Société canadienne de dentisterie pour les enfants tiendra aussi une réunion à Halifax. Le conférencier sera Norman Levine de Toronto.

Deux autres groupes de spécialistes ont aussi annoncé leurs réunions:

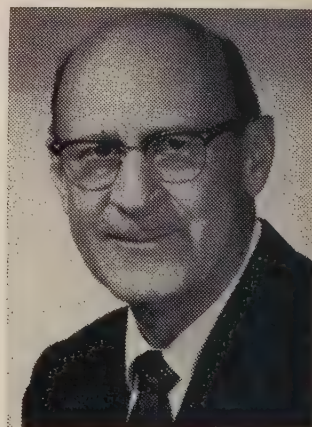
L'Académie canadienne d'endodontie prévoit une réunion scientifique et une réunion d'affaires pour le samedi 11 juin. Les conférenciers seront R. L. de C. H. Saunders de Halifax; M. B. Archambault, Benjamin Sedlezky, W. B. Donohue et H. M. Robichaud de Montréal.

L'Académie canadienne de dentisterie restaurative se réunira aussi le 11 juin.

About our Essayists and Clinical Lecturers

C. O. Boucher, Columbus: Graduate of Ohio State University; professor and chairman of the prosthodontic division, Ohio State University College of Dentistry; member of the graduate faculties of OSU College of Dentistry and department of speech; editor of the *Journal of Prosthetic Dentistry*.

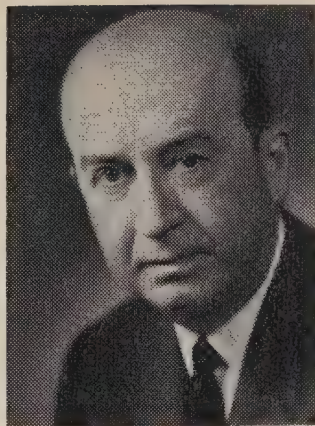
R. W. Phillips, Indianapolis: Research professor of dental materials, Indiana Uni-



C. O. Boucher



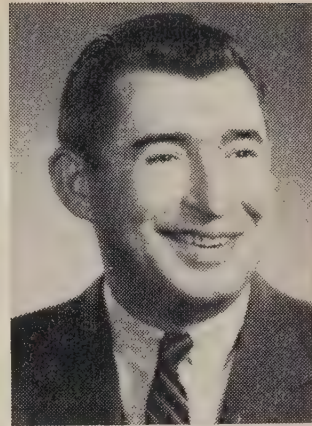
R. W. Phillips



G. M. Anderson



P. R. Dumke



J. D. Subtelny

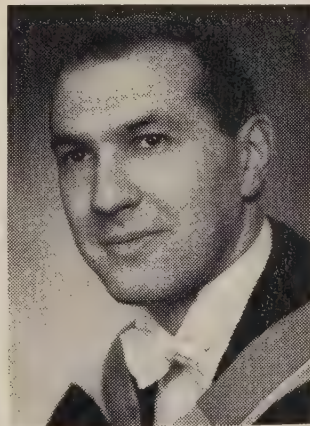
versity School of Dentistry; consultant to United States Public Health Service.

G. M. Anderson, Baltimore: Graduate of Baltimore College of Dental Surgery, University of Maryland; formerly professor of orthodontics, Baltimore College of Dental Surgery.

P. R. Dumke, Detroit: Medical graduate of Western Reserve University, Cleveland; chairman, department of anaesthesiology, Henry Ford Hospital, Detroit; formerly assistant professor and assistant director of anaesthesiology, Pennsylvania University Hospital, Philadelphia; formerly associate in clinical pharmacy and associate professor of anaesthesiology at the Graduate School of Pennsylvania University Hospital; formerly civilian consultant in anaesthesia, Valley Forge General Hospital; formerly instructor in anaesthesiology for World Health Organization at Copenhagen.



R. L. de C. H. Saunders



Norman Levine

A propos de nos conférenciers

C. O. Boucher, Columbus: diplômé du Ohio State University; professeur et chef de la section de prosthodontie à la Faculté dentaire de l'Ohio State University; membre du personnel enseignant de l'école des gradués de la Faculté dentaire et du département de phonétique de l'OSU; rédacteur du *Journal of Prosthetic Dentistry*.

R. W. Phillips, Indianapolis; professeur en recherches sur les matériaux dentaires à la Faculté dentaire de l'Indiana University; consultant au département d'hygiène publique des Etats-Unis.

G. M. Anderson, Baltimore: diplômé du Baltimore College of Dental Surgery de l'Université du Maryland; ex-professeur d'orthodontie au Baltimore College of Dental Surgery.

P. R. Dumke, Détroit: diplômé de la Faculté de médecine de l'Université Western Reserve à Cleveland; chef du département d'anesthésiologie au Henry Ford Hospital à Détroit; ex-assistant professeur et assistant directeur du service d'anesthésiologie au Pennsylvania University Hospital à Philadelphie; ex-adjoint en pharmacologie clinique et assistant professeur d'anesthésiologie à l'école des gradués du Pennsylvania University Hospital; ex-consultant en anesthésiologie au Valley Forge Hospital; ex-chargé d'enseignement de l'anesthésiologie pour l'Organisation mondiale de la santé à Copenhague.



J. D. Subtelny, Pittsford, New York: Graduate of University of Pennsylvania School of Dentistry; chairman, department of orthodontics, Eastman Dental Dispensary, Rochester, New York; consultant to United States National Institutes of Health.

J. D. Subtelny, Pittsford, New York: diplômé de la Faculté dentaire du Pennsylvania University; chef du département d'orthodontie au Eastman Dental Dispensary à Rochester, New York; consultant au National Institutes of Health des Etats-Unis.

R. L. de C. H. Saunders, Halifax: Born in South Africa; medical graduate of Rhodes University (Union of South Africa) and Edinburgh University; formerly lecturer in anatomy, Edinburgh University; professor and head of the department of anatomy, Dalhousie University.

R. L. de C. H. Saunders, Halifax: natif d'Afrique du Sud; diplômé de la Faculté de médecine du Rhodes University (Union sud-africaine) et de l'Université d'Edinburgh; ex-professeur d'anatomie à l'Université d'Edinburgh; professeur et chef du département d'anatomie à l'Université Dalhousie.

Norman Levine, Toronto: Graduate of University of Toronto; associate in dentistry (paedodontics), Faculty of Dentistry, University of Toronto; staff member, dental department, Hospital for Sick Children, Toronto; dental consultant to Metropolitan Toronto Association for Retarded Children.

Norman Levine, Toronto: diplômé de l'Université de Toronto; adjoint au département de pédodontie à la Faculté dentaire de l'Université de Toronto; membre du département dentaire du Hospital for Sick Children à Toronto; consultant dentaire à l'association métropolitaine de Toronto pour les enfants arriérés.

Dental Hygienists

Dixie Scoles, Winnipeg, president of the Canadian Dental Hygienists Association, invites dental hygienists from all parts of Canada to support their national association by attending its third annual convention in Halifax June 12-15. Dean J. W. Neilson of the Faculty of Dentistry, University of Manitoba,—a periodontist—is the principal speaker. Business sessions and table clinics and a film program are also planned.



Dixie Scoles

Sunday June 12

2:00 Board Meeting—Lord Nelson Hotel
Afternoon—Registration

Hygiénistes dentaires

Mlle Dixie Scoles de Winnipeg, présidente de l'Association canadienne des hygiénistes dentaires, demande aux hygiénistes de tout le pays de collaborer au succès du congrès de leur association nationale, en se rendant à Halifax du 12 au 13 juin. Un périodontiste, le Dr J. W. Neilson, doyen de la Faculté dentaire de l'Université du Manitoba, sera le conférencier principal. Il y aura aussi au programme une réunion d'affaires, des cliniques de table et la projection de films.

Dimanche, 12 juin

2h.00 Réunion du bureau de direction —
Hôtel Lord Nelson
Après-midi—Inscription
Soir—Réception, avec les Jubilee Singers
—Hôtel Nova Scotian

Lundi, 13 juin

9h.00 Inscription, réunion du bureau de direction
11h.00 Dr J. W. Neilson, Winnipeg
12h.30 Déjeuner de l'Association dentaire canadienne
2h.30 Cliniques de table
Soir—Dégustation de homard



Evening—Reception, Jubilee Singers —
Nova Scotian Hotel

Monday June 13

9:00 Registration, Board meeting
11:00 J. W. Neilson, Winnipeg
12:30 Canadian Dental Association
Luncheon
2:30 Table clinics
Evening—Lobster party

Tuesday June 14

9:00 T. L. Marsh, Ottawa
11:00 Dental Materials—R. W. Phillips,
Indianapolis
12:30 Canadian Dental Hygienists Asso-
ciation Luncheon — Dresden Arms
Hotel
2:00 Annual session of Board of Direc-
tors
Evening — Theatre Party — Neptune
Theatre

Wednesday June 15

9:30 Drug Therapy — P. R. Dumke,
Detroit
11:00 Pulp Circulation — R. L. de C. H.
Saunders, Halifax
2:30 Prosthodontics — C. O. Boucher,
Columbus
3:30 Paedodontics — Norman Levine,
Toronto
6:30 CDA President's Banquet and Ball

Dental Assistants

A warm welcome from the executive of the Canadian Dental Nurses and Assistants Association and the Halifax Dental Nurses and Assistants Association awaits all dental assistants when they arrive in Halifax for the annual meeting of their national association June 12-15. Program highlights include keynote speakers, table clinics, displays, business sessions, installation of new officers, and social functions.

Mardi, 14 juin

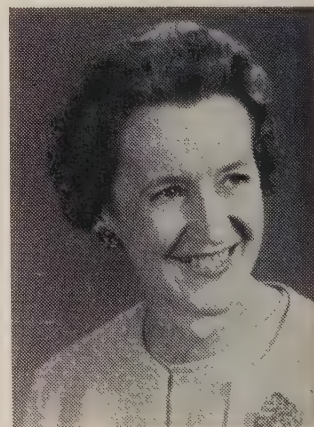
9h.00 Dr T. L. Marsh, Ottawa
11h.00 Matériaux dentaires — Dr R. W.
Phillips, Indianapolis
12h.30 Déjeuner de l'Association cana-
dienne des hygiénistes dentaires —
Hôtel Dresden Arms
2h.00 Réunion annuelle du bureau de
direction
Soir—Réception au théâtre Neptune

Mercredi, 15 juin

9h.30 Médication — Dr P. R. Dumke,
Détroit
11h.00 Circulation pulpaire—Dr R. L. de
C. H. Saunders, Halifax
2h.30 Prothèse—Dr C. O. Boucher, Co-
lumbus
3h.30 Pédodontie — Dr Norman Levine,
Toronto
6h.30 Banquet et bal du président de
l'ADC

Assistantes dentaires

Le conseil exécutif de l'Association canadienne des infirmières et assistantes dentaires et celui de l'Association des infirmières et assistantes dentaires de Halifax recevront les assistantes dentaires qui se rendront à Halifax pour assister à la réunion annuelle de leur association nationale qui se tiendra du 12 au 15 juin. Au programme, on prévoit des conférenciers de marque, des cliniques de table, des exhibits, des réunions d'affaires, la mise en fonction du nouvel exécutif et des activités sociales.



Penny Waite, president,
Canadian Dental Nurses
and Assistants Associa-
tion.



Registration, Accommodation

Complete the form on the back of this page and mail with registration fee to C. E. Dexter, registration chairman, 2631 Dutch Village Road, Halifax, Nova Scotia (Bus. telephone 454-1497, Res. telephone 455-5330). Make cheques payable *at par* to CDA Convention Committee. Registration fee (member \$40, wife \$10, total \$50) *must accompany* registration form to receive consideration. Cancellation with assurance of refund can only be made up to May 30, 1966.

Registration fee covers Sunday evening program, luncheons, lobster party, president's dinner and dance.

Hotel rooms will be assigned in the order in which registrations are received. Early registration is therefore advisable. Convention officials cannot accept responsibility for accommodation arranged privately.

In view of expected attendance, hotel suites or single hotel rooms may be scarce. To obtain a room in the convention hotels it may be advisable to share accommodation with another registrant. Therefore, please name the persons with whom you would be willing to share accommodation. Otherwise, assignment will be made if necessary by the housing committee.

Inscription, Logement

Veillez remplir la formule au verso et la poster avec votre chèque, à C. E. Dexter, président de l'inscription, 2631 Dutch Village Road, Halifax, Nouvelle-Ecosse (téléphone, au bureau 454-1497; résidence 455-5330). Veillez faire votre chèque payable *au pair* à l'ordre du Comité du congrès de l'ADC. Les frais d'inscription (membre \$40, épouse \$10, total \$50) *doivent accompagner* la demande d'inscription pour que celle-ci soit considérée. On peut annuler, avec privilège de remboursement, jusqu'au 30 mai 1966.

Les frais d'inscription comprennent le programme de la soirée du dimanche, les déjeuners, la dégustation de homard, le banquet et le bal du président.

Les chambres d'hôtel seront distribuées suivant l'ordre de réception des inscriptions. Il est donc préférable de s'inscrire le plus tôt possible. Les responsables du congrès regrettent de ne pouvoir se porter garant des réservations faites à titre privé.

Comme on croit qu'il y aura affluence, on s'attend à ce que les chambres simples soient très rares. Pour pouvoir obtenir une chambre à l'hôtel où se tiendra le congrès, il sera parfois nécessaire de la partager avec un autre congressiste. En conséquence, veuillez avoir l'amabilité d'indiquer le nom des confrères avec qui vous seriez disposé à loger. Faute de quoi le comité de logement attribuera les chambres au meilleur de sa connaissance.

Complete the registration and accommodation portions only. Mail the entire form with registration fee to C. E. Dexter, registration chairman, 2631 Dutch Village Road, Halifax, Nova Scotia.

National Convention
Canadian Dental Association
June 12-15, 1966

HALIFAX

Congrès national
Association dentaire canadienne
du 12 au 15 juin, 1966

Registration • Inscription

Name/nom _____
(Surname/nom de famille)

No. _____

_____ (Christian name/prénom)

Telephone _____
(Office/bureau)

Address/adresse _____

Telephone _____
(Residence)

City/ville _____ Province _____

Wife/épouse ☐ Name/prénom _____

Children/enfants ☐ Name/prénom _____

Age _____

Name/prénom _____

Age _____

Would you like to sail on schooner 'Bluenose'

Yes ☐

No ☐

Excursion sur le schooner 'Bluenose'

Oui ☐

Non ☐

Enclosed is cheque \$ _____ or money order \$ _____

Chèque \$ _____ ou mandat de poste \$ _____ ci-inclus

Travel/Voyage

Rail ☐ Auto ☐
Air ☐ Bus ☐

Accommodation • Logement

No. _____

Nova Scotian ☐

Lord Nelson ☐

Hotel ☐ room _____
chambre _____

twin/lits jumeaux
(\$13-\$18) ☐

double/lit double
(\$13-\$18) ☐

suite (\$30-\$40) ☐

single/lit simple
(\$9-\$13) ☐

Motel ☐

twin/lits jumeaux
(\$10-\$17) ☐
single/lit simple
(\$8-\$10) ☐

double/lit double
(\$10-\$17) ☐

Tourist home ☐

twin/lits jumeaux
(\$3) ☐

double/lit double
(\$3-\$6) ☐

Pension

Name of person sharing accommodation:/Compagnon de logement:

Name/nom _____ and/et _____

Address/adresse _____ and/et _____

City/ville _____ Prov. _____ City/ville _____ Prov. _____

Arrival/arrivée: Date _____ a.m. _____ p.m.

Departure/départ: Date _____ a.m. _____ p.m.

Please confirm reservation to: / Adresser la confirmation à:

Name/nom _____ Telephone _____
(Office/bureau)

Address/adresse _____ Telephone _____
(Residence)

City/ville _____ Province _____

Registration Receipt • Reçu d'inscription

No. _____

CDA Convention June 12-15, 1966

Member/membre \$ _____

Congrès ADC du 12 au 15 juin, 1966

Wife/épouse \$ _____

Name/nom _____

Total \$ _____

Address/adresse _____

Regn. Chmn./Prés. inscription

Present this stub when you register/Présenter ce talon lors de l'inscription

Ne remplir que les portions d'inscription et logement. Adresser le tout, accompagné de votre chèque, à C. E. Dexter, président de l'inscription, 2631 Dutch Village Road, Halifax, Nouvelle-Ecosse.

Orthodontists

The Canadian Society of Orthodontists will hold its annual scientific meeting in conjunction with the CDA national convention in Halifax June 13-15. The sessions are open to all dentists registered at the convention. The following program has been scheduled:

MONDAY, JUNE 13

- 9:00 Business meeting
- 11:00 G. M. Anderson: Grieve Memorial Lecture
- 12:30 CDA Luncheon
- 2:30 G. M. Anderson: Theory vs. facts
- 3:30 Business meeting
- 6:30 Lobster party

TUESDAY, JUNE 14

- 10:00 J. D. Subtelny: Cephalometric and orthodontic diagnosis
- 12:30 City of Halifax-NSDA Luncheon
- 2:30 J. D. Subtelny: Muscles and orthodontics; diagnosis including adaptive and nonadaptive patterns

WEDNESDAY, JUNE 15

- 9:00 A. E. Eastwood: Orthodontics and the British Health Service: an appraisal.
- 10:00 J. D. Subtelny: Growth and orthodontic procedures: variation in treatment procedures contingent on diagnosis
- 12:30 Government of Nova Scotia Luncheon
- 6:30 CDA President's Ball

Dental Assistants

The following details of the program for dental assistants at the CDA national convention in Halifax have been released:

SUNDAY, JUNE 12

- 3:00 House of Delegates and Governors meeting—Lord Nelson Hotel
- Registration
- 7:30 Musicale—Nova Scotian Hotel

MONDAY, JUNE 13

- 9:30 Official opening—Lord Nelson Hotel
- 11:00 President's welcome; greetings from CDA and NSDA presidents
- 11:30 Coffee party
- 2:15 M. S. Epstein, lecturer—Lord Nelson Hotel
- 4:30 Table clinics—Nova Scotian Hotel
- 6:30 Lobster party

TUESDAY, JUNE 14

- 9:00 Annual business meeting—Lord Nelson Hotel
- 11:00 R. W. Phillips, lecturer: Dental materials — Nova Scotian Hotel
- 12:45 Luncheon: own choice
- 2:00 Tour; shopping; exhibits—Nova Scotian Hotel
- 7:00 Banquet—Dresden Arms Hotel

WEDNESDAY, JUNE 15

- 9:30 Motion picture—Lord Nelson Hotel
- 11:00 R. L. de C. H. Saunders, lecturer: X-ray microscopy of dental pulp vessels — Nova Scotian Hotel
- 12:45 Farewell luncheon
- 6:30 CDA President's Ball—Nova Scotian Hotel

Orthodontistes

La Société canadienne des orthodontistes tiendra sa réunion annuelle conjointement avec le congrès national de l'ADC à Halifax du 13 au 15 juin. Le programme sera le suivant:

LUNDI, 13 JUIN

- 9h.00 Réunion d'affaires
- 11h.00 Conférence du Memorial Grieve: G. M. Anderson
- 12h.30 Déjeuner de l'ADC
- 2h.30 G. M. Anderson: Théorie et réalité
- 3h.30 Réunion d'affaires
- 6h.30 Dégustation de homard

MARDI, 14 JUIN

- 10h.00 J. D. Subtelny: Céphalométrie et diagnostic en orthodontie
- 12h.30 Déjeuner de la ville de Halifax
- 2h.30 J. D. Subtelny: Les muscles en orthodontie

MERCREDI, 15 JUIN

- 9h.00 A. E. Eastwood: L'orthodontie et le Service britannique de santé: une évaluation
- 10h.00 J. D. Subtelny: La croissance et les traitements d'orthodontie
- 12h.30 Déjeuner du gouvernement de la Nouvelle-Ecosse
- 6h.30 Bal du président de l'ADC

Assistantes dentaires

On nous communique les renseignements suivants concernant le programme préparé pour les assistantes dentaires à l'occasion du congrès national de l'ADC à Halifax:

DIMANCHE, 12 JUIN

- 3h.00 Réunion des gouverneurs et des délégués — Inscription — Hôtel Lord Nelson
- 7h.30 Soirée musicale — Hôtel Nova Scotian

LUNDI, 13 JUIN

- 9h.30 Ouverture officielle — Hôtel Lord Nelson
- 11h.00 Mot de bienvenue du président
- 11h.30 Café
- 2h.15 Conférence de M. S. Epstein — Hôtel Lord Nelson
- 4h.30 Cliniques de table — Hôtel Nova Scotian
- 6h.30 Dégustation de homard

MARDI, 14 JUIN

- 9h.00 Réunion d'affaires—Hôtel Lord Nelson
- 11h.00 Conférence de R. W. Phillips: Matériaux dentaires — Hôtel Nova Scotian
- 12h.45 Déjeuner libre
- 2h.00 Temps libre; exhibits — Hôtel Nova Scotian
- 7h.00 Banquet — Hôtel Dresden Arms

MERCREDI, 15 JUIN

- 9h.30 Film — Hôtel Lord Nelson
- 11h.00 Conférence de R. L. de C. H. Saunders: Radio-microscopie des vaisseaux sanguins de la pulpe — Hôtel Nova Scotian
- 12h.45 Déjeuner d'adieu
- 6h.30 Bal du président de l'ADC — Hôtel Nova Scotian

The Association

A. L. Walsh, Former McGill Dean and CDA Past President, Dies

Retired McGill University Dean A. L. Walsh, a one-time president of the Canadian Dental Association, died in Montreal December 21, 1965 at the age of 74.

Dr. Walsh, who had been in charge of clinical instruction at McGill since 1924, became acting dean in 1927 and dean of the faculty in 1940. In the latter capacity he helped to establish accelerated courses to supply more dentists to Canada's armed forces during World War II. He resigned in 1948 when increased student registration necessitated the appointment of a full-time dean.

Born in Kingston, Ontario, he received his early education in Valleyfield, P. Quebec, and graduated from McGill's Faculty of Dentistry in 1920.

As president of the Canadian Dental Association in 1942-43, he was instrumental in creating the CDA Council on Education, serving as its first chairman upon retirement from the CDA presidency. Dr. Walsh was also president of the American Association of Dental Schools in 1941-42. In 1937 he received the Coronation Medal from King George VI and in 1945 the Université de Montréal awarded him a DDS degree honoris causa. He was a fellow of the American College of Dentists and the International College of Dentists and of the Harvard University Chapter of the professional fraternity, Omicron Kappa Upsilon.

International Items

ADA Considers National Children's Program

The American Dental Association has taken preliminary steps in what may develop into a national children's dental care program in the United States. At a meeting in Chicago December 9-10, 1965, the ADA Council on Dental Health reviewed various proposals for a children's program in accord with a resolution adopted at the ADA's Las Vegas annual session calling for development of "a national program for children, particularly the needy and underprivileged, in order to make the benefits of modern dental health service available to all children of the nation."

Among possible elements considered for inclusion in the national children's program were:

Free choice of dentist and patient;

Basic dental care, through a progressive program, for all children;

A system of formula grants to states to pay for care of indigent and medically indigent children;

Voluntary prepayment so that children of families financially able to afford dental treatment could participate; and

An active, nation-wide dental health education program.

ADA to Test Foreign Dentists

The American Dental Association's Council on Dental Education will offer a test-

ing program for the evaluation of dentists from abroad seeking admission to undergraduate or advanced educational programs in the United States.

Administered on a trial basis in 1964-65 to Cuban dentists seeking admission to US dental schools, the program will now be extended to all foreign dentists wishing to further their dental education in the USA.

Three New Electric Brushes 'Recognized' by ADA

The ADA Council on Dental Therapeutics has recognized three additional electric toothbrushes as "effective cleansing devices." The three brushes are the Sunbeam Cordless Hygienic Toothbrush, the Westinghouse Multi-Action Toothbrush and the Tek Automatic Toothbrush. The Tek Automatic Toothbrush is distributed by the Tek-Hughes Division of Johnson and Johnson Company.

The ADA Council on Dental Therapeutics has classified all three brushes in Group B and has authorized use of the following statement: "The (name of toothbrush) has been provisionally accepted as an effective cleansing device for use as part of a program of good oral hygiene to supplement the regular professional care required for oral health." Group B consists of products which, because of their relative newness, lack sufficient evidence for regular listing in *Accepted Dental Remedies* but for which there is good evidence of usefulness and safety.

Two electric brushes — manufactured by General Electric Company and E. R. Squibb and Co. — were previously granted recognition.

ADA Occupies New Headquarters

At the end of last year the staff of the American Dental Association moved into its new 23 storey headquarters building at 211 East Chicago Avenue in Chicago. The ADA occupies about half of the new building, with the balance leased to tenants. Several dental organizations have leased space, along with some den-

tal companies. The ADA occupies the fourth and fifth and 18th through 22nd floors. Dedication ceremonies for the new headquarters will take place on February 27.

Glickman Will Address Chicago Periodontic Seminar Feb. 27

The Chicago Periodontal Study Club has announced that Irving Glickman, professor and chairman of the Department of Periodontology, Tufts University School of Dental Medicine, Boston, will address its annual midwinter seminar February 27. The meeting will be held at the Pick-Congress Hotel, Chicago.

For further information write to M. D. Lerman, 1950 Sheridan Road, Highland Park, Illinois, USA.

Oral Pathologists Plan April Meeting in Chicago

Canadian dentists have been invited to attend the annual meeting and seminar of the American Academy of Oral Pathology in Chicago April 13-16. K. M. Earle will present this year's seminar titled "Peripheral Nerve Tumours." Further information may be obtained from S. M. Standish, secretary, School of Dentistry, Indiana University, Indianapolis 2, Indiana 46202, USA.

American Society of Periodontists Meeting in Chicago June 1-4

Periodontists and general practitioners have been invited to attend the 1966 annual meeting of the American Society of Periodontists June 1-4 at the Sheraton-Chicago Hotel, Chicago.

Scientific sessions will be held June 2-4, with registration on June 1. A special feature of the scientific program will be a graduate student seminar. In addition, the Balint J. Orban prize competition for graduate students also is scheduled on the program.

There is no registration fee for ASP members and for students. The registration fee for non-members is \$50.



CNIT Building, Paris, France, where the 14th World Dental Congress will be held July 7-14, 1967.

Heurard

Additional information about the program and registration and hotel reservation forms are obtainable from the ASP executive secretary, M. B. Stone, 866 North Wabash Avenue, Chicago, Illinois 60611, USA.

Japanese Meeting October 8-11

Canadian dentists have been invited to attend the 11th general meeting of the Japanese Association for Dental Science in Tokyo, October 8-11. JADS, which is affiliated to the Japan Dental Association, consists of eight components catering to special interest areas ranging from conservative dentistry to dental radiology. Special presentations in English are planned for foreign participants. Further information may be obtained by writing to Shinichi Kato, secretary general, Japanese Association for Dental Science, c/o Japan Dental Association, 4-6 Kudan, Chiyoda-Ku, Tokyo, Japan.

'67 World Congress in Paris

Dentists from all corners of the globe will converge on Paris when the Fédération Dentaire Internationale holds its 14th World Dental Congress in the French capital in 1967.

Congress sessions, slated for July 7-14,

will be held at the CNIT Building (Centre National des Industries et des Techniques).

Canadian dentists who plan to attend should make hotel reservations as soon as possible. For further information write to Jacques Charon, 12 rue du 4 Septembre, Paris 2e, France, or to G. H. Leatherman, secretary general, Fédération Dentaire Internationale, 35 Devonshire Place, London W.1., England.

Dental Organizations

New Society for Quebec Oral Surgeons

A new organization for certified oral surgeons has been formed in Quebec. Known as the Society of Oral Surgeons of the Province of Quebec, the group held its inaugural meeting on November 11, 1965. The society plans to seek incorporation from the provincial legislature.

The objects of the new society are:

To promote the public welfare by the advancement of oral surgery in the fields of education, science and professional service;

To promote the objectives of the society and those of the Canadian Society of Oral Surgeons;

To promote unity and harmony and to cultivate fellowship and social relations among its members; and

To establish qualifications and provide for the recognition of properly qualified oral surgeons.

The executive committee for 1965-66 includes: Gérard de Montigny, president; R. M. Wiener, vice-president; W. B. Donohue, secretary-treasurer; and Gaston Chesnay and E. P. Millar, councillors.

Montreal Société Marks 40th Anniversary

Montreal's dental community recently celebrated the 40th anniversary of the founding of the Société dentaire de Montréal. This society was launched in 1925 thanks to the initiative of three Université de Montréal professors: J. A. Pinault, J.-P. Lantier and Paul Geoffrion.

To mark this historic event, the SDM sponsored a formal dinner dance last December. Among the guests were Drs. Lantier and Geoffrion as well as several past presidents.

Ont. Medical and Dental College Representatives Meet

Officers of the Royal College of Dental Surgeons of Ontario met with their counterparts of the College of Physicians and Surgeons of Ontario on October 20, 1965, in what is believed to be the first joint meeting of the two provincial licensing authorities. Purpose of the conference was to work toward a consensus on problems affecting professional services that lie within the competence of members of either college. The representatives discussed:

The emerging health science concept for schools of medicine and dentistry;

Specialization in dentistry, including the roles of the RCDS and the Royal College of Dentists of Canada;

Privileges accorded to dental staff members of teaching hospitals; and

The exclusion of dentists under Ontario's Medicare Act. Section 1 [f] of Bill 163 now provides that a resident is covered for treatment of jaw fractures, infections of dental origin, and manage-

ment of oral tumours and biopsies if he is under the care of a physician but not if he is under a dentist's care. To resolve this problem CPSO President Wilson asked the RCDS representatives to draft (1) a list of surgical services ordinarily performed by a dentist and (2) a list of additional services requiring hospitalization which a dentist might render with the agreement of the hospital's medical advisory committee on recommendation of the chief of the surgical staff.

At the conclusion of the meeting officers of both colleges adopted a joint resolution which was forwarded to the Ontario Minister of Health.

Ten Dentists Pass Ontario Licensing Exam

The Royal College of Dental Surgeons of Ontario reports that 10 dentists (nine from overseas) were examined and admitted to practise in Ontario last year. This group is in addition to those who are registered as University of Toronto graduates or National Dental Examining Board certificate holders.

Five specialists — two oral surgeons, one orthodontist, and two periodontists—were also certified last year.

Ontario Group Probes Drugs in Dentistry

Dentists across Canada may ultimately benefit from the results of a study of drug therapy in dentistry now under way in Ontario. Launched in April of last year, the investigation is probing the use of drugs and premedication in dentistry for children, oral surgery and anaesthesia, periodontics and restorative dentistry. Also to be scrutinized are the compatibility of different drugs, minimum physical examination prior to drug administration in dentistry, and undergraduate instruction in therapeutic pharmacology.

Sponsored by the Royal College of Dental Surgeons of Ontario, the study is being conducted by an interdisciplinary committee representing general practitioners in dentistry; periodontists; paedodontists; oral surgeons; the University of Toronto's Institute of Child Study,

Faculty of Pharmacy, Faculty of Dentistry, and Faculty of Medicine (Department of Pharmacology); the RCDS; and the Department of Anaesthesia of the Hospital for Sick Children, Toronto.

The final aim of this committee is to compile a manual on drug therapy in dentistry.

K. W. Davey, Toronto, is chairman and E. G. Sonley, Willowdale, Ontario, is secretary of the committee.

Northern Ontario Dentists Elect Timberg

A. I. Timberg, Sault Ste. Marie, was recently elected president of the Northern Ontario Dental Association. J. C. Shaw, Timmins, is vice-president; L. D. Prokop, Sault Ste. Marie, is secretary-treasurer.

Winnipeg Meetings Feature Periodontics, Oral Surgery

Winnipeg dentists listened intently when a prominent American dentist and a leading Canadian oral surgeon discussed the latest developments in periodontics and oral surgery at two recent meetings of the Winnipeg Dental Society.

S. S. Stahl, professor of periodontics and oral medicine at New York University College of Dentistry, gave an appraisal of current periodontic therapy, including curettage, home care, occlusal adjustment and other selected surgical procedures.

University of Toronto professor of oral surgery P. T. Smylski, a former Manitoban, described the principles of soft and hard tissue surgery. Dr. Smylski also outlined various forms of jaw malformation and their treatment.

Saskatchewan College Meets April 15 in Moose Jaw

The 1966 annual meeting of the Saskatchewan College of Dental Surgeons will be held in Moose Jaw April 15, Secretary F. R. Smith has announced. The annual meeting will be preceded by the spring meeting of the College Council on April 14.

G. H. Janzen, Prince Albert, was elected president of the College at a council meeting last November 20-21. H. H. Cowburn, Saskatoon, was named vice-president.

At the November meeting Council authorized the payment of two annual scholarships, each of \$150, to the dental faculties at the Universities of Manitoba and Alberta.

MacGregor Addresses Sask. Children's Dentistry Group

S. A. MacGregor, University of Toronto, was the clinical lecturer at a meeting of the Saskatchewan Chapter, Canadian Society of Dentistry for Children, in Saskatoon October 23-24, 1965. Dr. MacGregor noted that many rural areas of Canada are being inadequately served by all the professions. He called on rural communities to offer suitable accommodation and practice facilities in order to attract competent professional people.

Saskatchewan Examines British Dentists

In December 1964 the Saskatchewan government advertised in Britain for dentists to practise in the province. Transportation expenses and financial assistance in establishing a practice were offered as inducements (as noted on page 686-7 of the October 1965 Journal). Almost 100 British dentists expressed an interest in coming to Saskatchewan.

Following an agreement between the Saskatchewan College of Dental Surgeons and the Saskatchewan government, the provincial Board of Examiners conducted written and clinical examinations of the interested dentists in Great Britain.

In July 1965, 15 candidates, all holders of the BDS degree, wrote the Saskatchewan examination. Of the 15, eight passed the written examination. Clinical examiners were then flown to London at government expense. They examined the eight candidates and found five eligible for registration with the College. Three of these dentists have since applied to the College for registration.



W. P. Munsie (centre right), past president of the College of Dental Surgeons of British Columbia, was recently honoured by his fellow BC dentists. Others appearing in this picture are (l. to r.) former CDA President William Miller, Vancouver; British Columbia Dental Association President D. E. Waller, Prince George; and Vancouver and District Dental Society President J. A. Folkins.

14 New Dentists Licensed in BC

Fourteen dentists were granted registration by the College of Dental Surgeons of British Columbia during recent months. Eight holders of National Dental Examining Board certificates were admitted on October 13, 1965. Three further NDEB certificate holders and three other dentists who passed provincial examinations were admitted on November 19-20.

Five dental hygienists, who were previously successful at provincial examinations, were also admitted to practice on November 19-20.

vincial organizations and has been a member of the CDA Board of Governors for the past four years. Two years ago he became a member of the CDA Executive Council.

During the special ceremony D. E. Waller, British Columbia Dental Association president, eulogized Dr. Munsie while former CDA President William Miller presented a gold watch from the dentists of British Columbia in appreciation of Dr. Munsie's services to the profession.

Canadian dental schools

BC Dentists Honour Dr. Munsie

W. P. Munsie, Vancouver, who retired recently as president of the College of Dental Surgeons of British Columbia, was honoured by his colleagues at the Mid-winter Clinic of the Vancouver and District Dental Society on December 11.

In addition to the college post, Dr. Munsie has been active in local and pro-

Six Appointed to Dalhousie Faculty

Dean J. D. McLean has announced details of six recent appointments to the Faculty of Dentistry at Dalhousie University. They affect Mary G. Sloanaker, H. J. MacConnachie, G. M. D. Conrad, T. Contreras, T. D. Ingham and D. C. T. Macintosh.

Mrs. Sloanaker's appointment as director of the School of Dental Hygiene began August 15, 1965. Born in Norway, Maine, she earned a BSc degree in health education at Boston University and in dental hygiene education at the University of Pennsylvania. Mrs. Sloanaker came to Dalhousie University from the Forsyth School of Dental Hygiene, Boston.

A 1953 graduate of Dalhousie and a practitioner in Halifax, Dr. MacConnachie served on the part-time and half-time staff of Dalhousie's Faculty of Dentistry until his appointment as associate professor of operative dentistry in September 1965.

Dr. Conrad was a part-time instructor in dental materials. He graduated from Dalhousie University in 1958 and immediately joined the Royal Canadian Dental Corps. He has been in private practice in Dartmouth, Nova Scotia, since 1964.

Prior to coming to Dalhousie University as dental librarian Dr. Contreras worked at the National Library in Manila and the library in the Veterans Memorial Hospital in Quezon City, Philippines. She is a native of the Philippines and graduated in dental medicine from the University of the East. She pursued further studies in library science at Far Eastern University and at St. Mary's College, Quezon, in the Philippines.

Doctors Ingham and Macintosh have been appointed to the active staff of the Halifax Children's Hospital. Dr. Ingham, who graduated from Dalhousie University in 1962, has been in private practice and will serve as an instructor in dentistry. Dr. Macintosh graduated from Dalhousie University in 1965.

Montreal Faculty Expands

A \$2 million expansion program now well under way will enable the Faculty of Dental Surgery at the Université de Montréal to raise its intake of undergraduates from 52 to 80 students.

Technique laboratories and the prosthodontic department were renovated and re-equipped last fall. A 16 unit closed circuit television system was installed in one of the laboratories.

Further construction, to be completed

by next August, will double the faculty's floor area by reclaiming space presently given to interior courtyards and by rearrangement of existing facilities at basement, ground floor and upper floor levels.

Paedodontic, periodontic and surgical clinics as well as a diagnostic centre are to be built. Also projected are new offices, lecture rooms and research laboratories. Capacity of the present 52 chair main clinic, to be reserved for restorative dentistry, will be increased to 80 chairs.

The new facilities will also permit the establishment of a growth study centre and a 30,000 volume library capable of accommodating 160 readers at a time.

In the meantime, student enrolment has already been increased. Last September 78 applicants were admitted to the first dental year.

Toronto Faculty Holds Open House Feb. 13

Dental education will again be on public display when Toronto's Faculty of Dentistry stages its annual 'Open House' on Sunday, February 13. This annual event provides opportunity for everyone interested in dentistry — plus their families and friends — to visit the University of Toronto dental building and observe, through student exhibits and demonstrations, modern dental education in action.

The dental building is located at 124 Edward Street, Toronto, off University Avenue and immediately south of the Hospital for Sick Children.

Royal Canadian Dental Corps

RCDC Assn. Installs Snidal as President

Lt.-Col. M. J. Snidal, Winnipeg, has been elected president of the Royal Canadian Dental Corps Association. He succeeds Lt.-Col. A. Z. Henry of Toronto.

Others elected at the 17th annual meeting of the RCDC Association, held December 3-4, 1965 in Ottawa, are: Lt.-Col.

A. J. Harris, London, president-elect; Lt.-Col. J. E. Hallett, Halifax, first vice-president; and Lt.-Col. J. B. Lachance, Quebec City, second vice-president.

Col. C. B. H. Climo, Ottawa, is secretary and Col. C. E. Woods, Ottawa, is treasurer.

Maj. Kelly Attends Surgery Course

Maj. L. E. Kelly, Vedder Crossing, British Columbia, attended a course in oral surgery at the University of Michigan, Ann Arbor, December 6-17, 1965.

Economics

Canadian DSC's Report No Progress

The current status of dental service corporations in Canada reveals that Nova Scotia, Quebec, Alberta and British Columbia have established corporations but that only the provinces of Alberta and British Columbia show any possibility of enrolling a pilot group in the near future.

Two Provinces Urge Expansion of Hygienists' Duties

Expanded duties for dental hygienists have recently been recommended in Nova Scotia and Ontario.

A committee of the Nova Scotia Dental Association has advocated that the services which dental hygienists can be trained to perform should be expanded to include taking of impressions for study models, selecting and fitting bands and temporary crowns, application of rubber dam, and polishing of restorations. The committee's recommendations were approved by NSDA members at the association's annual meeting.

Ontario has also recommended additional duties for hygienists. At the November 22-24, 1965, meeting of the Board of the Royal College of Dental Surgeons of Ontario, the following additional duties for dental hygienists were approved:

"(1) Orthodontic diagnostic record assembly to consist of the following points:

(a) Profile and full face black and white anthropometric photographs;

(b) Frontal and right and left lateral intra-oral photographs in colour;

(c) Height and weight records obtained by anthropometric standards and plotted on appropriate graphic record;

(d) Cephalometric radiographic survey;

(e) Intra-oral radiographic survey;

(f) Carpal radiograph where required;

(g) Orthodontic study model, poured and trimmed to anthropometric standards;

(h) The measuring and recording of cranial facial characteristics on a cephalometric radiograph after the placement of landmarks by the dental practitioner.

(2) Replacement of separation elastics.

(3) Preparatory selection of seamless band sizes on models preparatory to band fitting and replacement by the dental practitioner.

(4) Beginning of instruction and demonstration in oral hygiene, mouth care and removable appliance placement.

(5) Diet analysis for orthodontic patients.

(6) Case record assembly at the completion of orthodontic treatment."

The Board also approved the polishing of fillings by a dental hygienist. This procedure was defined as "including the use of disks, stones, finishing burs, and abrasives to finish and polish new and old fillings, but excluding carving contours, margins, occlusal anatomy, interproximal surfaces on the newly inserted filling, and the correction for high spots on both new and old fillings."

Provincial Fee Schedules Revised

Revision or amendment of dental fee schedules has been reported from four provinces.

Late last year the College of Dental Surgeons of the Province of Quebec approved a new schedule of fees. It employs most of the terminology and many of the principles of the relative value system established by the Canadian Dental Association.

The Economics Committee of the Brit-

ish Columbia Dental Association has commenced a revision of its fee schedule. The new schedule will be based on the CDA's relative value system.

The Economics Committee of the Alberta Dental Association has almost completed amendment of the Alberta Schedule of Fees. Here again, the CDA's relative value system forms the basis of the revision.

The Ontario Dental Association also issued a new schedule of fees in 1965. It contains a much more complete listing of diagnostic, preventive and treatment services than previous schedules. The ODA schedule tries to follow the Reference List of Dental Services of the CDA.

Payments Increased for Ontario Welfare Patients

Payments to dentists for services rendered to children and parents who are beneficiaries of mothers' allowances and assistance to dependant fathers were increased to 75 per cent of the Ontario Dental Association fee schedule last year. This is an increase from 66 2/3 per cent.

The Royal College of Dental Surgeons of Ontario is requesting a further grant from the Minister of Public Welfare so that pro-rating can be eliminated.

Orthodontic Service for Alberta Welfare Recipients

The Alberta government has begun an orthodontic service for welfare recipients under a plan administered by the Alberta Dental Association.

The association has appointed an orthodontic screening committee composed of an orthodontist, a private practitioner, the association secretary and a government representative. For welfare patients, orthodontists must submit to the committee a history, diagnosis, treatment plan, prognosis and estimated fee, along with casts, radiographs, cephalographs and tracings of the case. The committee considers each case and rules on the necessity for treatment and the estimated fee. Minor services, such as space maintainers, space regainers and cribs, costing

less than \$100 are authorized by the association secretary alone.

The orthodontist is paid quarterly and his fee is not pro-rated. The Alberta Dental Association is paid 5 per cent of the cost for administering the program. Annual cost of this program is estimated at about \$15,000.

Two out of Five Eligible Children Use Alberta Welfare Program

Forty per cent of the 20,140 children covered under the Alberta Pensioners' Treatment Service participate in the dental program. Latest statistics show that the average cost per treated child is \$24.71 a year. The cost per eligible child is \$9.85.

Each child under 10 years of age received an average of two to three amalgam fillings and one extraction in 1964. Only about one child in three received prophylaxes or applications of topical fluoride.

The 32,541 old age pensioners eligible under the dental program are covered at an average cost of \$1.97 per eligible person. The average cost for the other 12,768 adults covered is \$7.87 per eligible person.

Fluoridation

Developments on the Fluoridation Front

Over four and a half million Canadians, almost 24 per cent of the population, now receive fluoridated water. This includes almost three million Ontario residents who are now served by fluoridated water systems.

Latest figures for the United States show almost 2,900 communities and approximately 58 million people in fluoridated areas. Detroit is the latest major city to approve fluoridation, by referendum.

In Alberta a special committee of the legislature has recommended that the two-thirds majority required in fluoridation plebiscites be reduced to 51 per cent.

THE PRESENT STATUS OF TOPICAL FLUORIDES IN DENTISTRY

A Statement by the British Columbia Dental Association

March 1st, 1965

Fluoride solutions applied on tooth surfaces can increase the resistance of the enamel against dental caries.

Two different solutions of fluoride have been successfully used in the topical treatment of teeth, sodium fluoride and stannous fluoride.

Recently, a sodium fluoride solution acidulated with ortho-phosphoric and hydrofluoric acids has been introduced and appears to provide greater caries protection than stannous fluoride. This solution does not cause tooth discolouration or gingival irritation, and although

strongly acidic in taste, it does not have the unpleasant metallic flavour of stannous fluoride.

THE ACTION OF TOPICAL FLUORIDES

Older teeth, which become more resistant to caries, have a higher concentration of fluoride on their surfaces. "Artificial ageing" can be accomplished by the use of topical fluorides.

The chemical action of fluoride on tooth enamel is believed to result in a change of the hydroxy-apatite

artificially fluoridated to a concentration of one part fluoride per million. He has further directed that the necessary action be taken to implement this policy in the applicable Defence establishments."

Detroit Okays Fluoridation

Fluoridation won in Detroit on November 2, 1965 by 5,160 votes out of 376,796 votes cast. The measure had previously been approved by the Detroit City Council but opponents pressed for a referendum. Detroit is the largest US city ever to adopt fluoridation by referendum.

Awards and Honours

Her Majesty the Queen has bestowed a knighthood upon **A. C. R. McLeod** CVO of London, England. A native of Australia, Dr. McLeod in 1929 earned a BSc degree at the Faculty of Dentistry, University of Toronto. He also served as treasurer of the 1952 international congress of the Fédération Dentaire Internationale.

At the Midwinter Clinic of the Vancouver and District Dental Society December 11, British Columbia dentists presented a gold watch to **W. P. Munsie**, a former president of the College of Dental Surgeons of British Columbia and current member of the CDA Executive Council, in recognition of Dr. Munsie's services to the profession in British Columbia and Canada.

Victoria dentist **Hugh Clarke** has been appointed a fellow of Britain's Royal Society of Health. Dr. Clarke served more than 25 years as director of dental services for the Victoria schools, a post from which he retired last August.

W. R. Upton, Vancouver, executive secretary of the College of Dental Surgeons of British Columbia, was recently elected an honorary member of the British Columbia Pharmaceutical Association in recognition of his services to pharmacy.

Topical Fluoride Statement Published by BC Assn.

The British Columbia Dental Association has recently published a four page leaflet outlining the status of topical fluorides in dentistry. The statement summarizes the action, use, and technique of applying topical fluorides on tooth surfaces to increase resistance of enamel against dental caries. A paragraph on fluoride dentifrices is also included. Copies of the statement have been distributed to all dentists in British Columbia.

Defence Minister Says 'Yes' to Fluoridation

Fluoridation in Canada has received a further boost, this time from the Department of National Defence. The Canadian Dental Association has learned that "the Minister of National Defence has now approved the recommendation that water for human consumption in Defence establishments not already served with naturally or artificially fluoridated water be

Organismes dentaires

Société de chirurgie buccale de la province de Québec

La Société de chirurgie buccale de la province de Québec a été fondée le 11 novembre dernier par un groupe de spécialistes de cette province.

Cet organisme fera bientôt sa demande d'incorporation à la législature provinciale.

Les objectifs de la Société ont été définis comme suit: (1) promouvoir les intérêts du public en favorisant le progrès de la chirurgie buccale aussi bien dans le domaine de l'enseignement et de la recherche, que dans celui des services professionnels; (2) promouvoir les intérêts de ses membres; (3) promouvoir l'unité et l'harmonie parmi ceux-ci; (4) déterminer les qualifications nécessaires à la reconnaissance officielle des spécialistes en chirurgie buccale.

Lors de la première réunion, les membres de la Société ont sanctionné une constitution et des règlements. Ils ont aussi choisi leur exécutif pour l'année 1965-66: le président est le docteur Gérard de Montigny, le vice-président le docteur R. M. Wiener, le secrétaire-trésorier le docteur W. B. Donohue, et les conseillers les docteurs Gaston Chesnay et Eric P. Millar.

40ème anniversaire de la Société Dentaire de Montréal

C'est par un dîner de gala et un bal que la Société dentaire de Montréal a célébré le 40ème anniversaire de sa fondation.

C'est en effet grâce à l'initiative de trois professeurs de l'Université de Montréal,

les docteurs J. A. Pinault, Jacques-P. Lantier et Paul Geoffrion, que cette société a été fondée en 1925.

Les membres de la société ont eu le plaisir d'avoir parmi eux, à l'occasion de cet anniversaire, deux des trois fondateurs, les docteurs Lantier et Geoffrion, de même que plusieurs anciens présidents.

L'Association dentaire de Colombie-britannique recommande des examens cliniques plus approfondis

Le comité des relations extérieures de l'Association dentaire de Colombie britannique s'inquiète de ce que bien des patients soient examinés d'une façon trop succincte par leurs dentistes. Certains ne font que jeter un rapide coup d'œil sur les dents, alors qu'ils devraient faire un examen beaucoup plus approfondi. Le comité des relations extérieures se demande ce que le patient et le public pensent de tout cela.

Un sous-comité sous la direction de J. E. G. Harrison de Vancouver étudie présentement la possibilité d'établir des standards pour les examens dentaires qui devraient normalement comporter l'examen radiologique, un diagnostic correct, l'élaboration d'un programme de traitements et d'un estimé d'honoraires.

Facultés dentaires canadiennes

Cours de formation pour assistantes dentaires à l'Université de Montréal: nouvelle carrière pour la femme

Devant les besoins grandissants de la profession dentaire, l'Extension de l'en-

seignement de l'Université de Montréal offre, en collaboration avec la Faculté de chirurgie dentaire, un cours de formation pour assistantes dentaires, qui a débuté le 16 septembre dernier.

Jusqu'à maintenant, cette carrière n'existait pas de façon officielle au Québec: chaque dentiste formait lui-même son assistante, bien que des séries de conférences spécialisées aient déjà été offertes par un groupement professionnel. Dorénavant, la femme attirée par cette profession, pourra vraiment acquérir des connaissances de base et une formation générale; elle deviendra plus qu'une aide, elle sera le bras droit du dentiste, celle qui assurera le bon fonctionnement d'un cabinet dentaire.

Les 86 heures de cours qu'elle peut suivre, le soir, comportent les sujets suivants: éthique professionnelle, maintien, manipulation des dossiers, comptabilité, administration de bureau, psychologie et personnalité, anatomie dentaire (notions), matériaux dentaires, radiologie, hygiène dentaire et santé publique, premiers soins, bactériologie, assistance à la chaise du dentiste.

Ces cours conduisant à une attestation d'étude, s'échelonnent sur une année et sont donnés à l'Université de Montréal, sous la direction du docteur Jacques Bélanger de la Faculté de chirurgie dentaire. Pour tous renseignements, on est prié de s'adresser à l'Extension de l'enseignement: RE 3-9951 - poste 396.

Expansion des Installations de la Faculté Dentaire de l'Université de Montréal

Des travaux qui coûteront environ \$2,000,000 sont actuellement en cours à la Faculté de chirurgie dentaire de l'Université de Montréal. Le programme d'expansion se réalise en deux étapes distinctes.

La première partie, réalisée entre les mois de juin et octobre 1965 s'appliquait au réaménagement des laboratoires d'odonto-technique et du département de prothèse. C'est dans l'un de ces laboratoires qu'est installé le système de télévision en circuit fermé, qui comprend maintenant 16 appareils moniteurs.

La deuxième étape du programme s'échelonnera entre le mois de décembre 1965 et le mois d'août 1966. Les constructions nouvelles permettront de récupérer l'espace qui était originellement occupé par les cours intérieures; compte tenu des possibilités d'aménagement au sous-sol, au rez-de-chaussée et à l'étage, on prévoit pouvoir doubler la superficie de la Faculté.

En plus de bureaux, salles de cours, laboratoires de recherche, on installera une clinique spécialisée de pédodontie, une clinique de périodontie, un centre de diagnostic et une clinique de chirurgie. La grande clinique actuelle sera réservée aux travaux de restauration et sa capacité passera de 52 à 80 fauteuils.

Les nouveaux locaux permettront d'établir un centre d'étude sur la croissance et une bibliothèque offrant 160 places et pouvant recevoir 30,000 volumes.

Les travaux en cours permettront de porter de 50 à 80 le nombre de diplômés que forme chaque année la Faculté de chirurgie dentaire. En septembre 1965, on a déjà accepté 78 candidats en 1ère année.

Un chercheur britannique à la Faculté manitobaine

David Ferguson de Newcastle-upon-Tyne, a fait un bref séjour à la Faculté de chirurgie dentaire de l'Université du Manitoba. Le docteur Ferguson qui est venu en Amérique du Nord grâce à une bourse de la Nuffield Foundation, a passé deux semaines au service de biochimie du Département de biologie buccale du Manitoba. Il s'est intéressé aux techniques de micro-chimie employées là-bas et en retour, a donné une conférence traitant de ses propres recherches qui portent sur les protéines de la salive humaine.

Le Canada manque d'hygiénistes dentaires

Mlle Margaret Berry, directeur de l'Ecole d'hygiène dentaire de l'Université de l'Alberta, croit que le Canada devra encore longtemps aller chercher ses diplômés en hygiène dentaire aux Etats-Unis, car le Canada ne forme pas ses propres profes-

seurs en hygiène dentaire. Le cours de deux ans qui permet d'accéder au diplôme d'hygiéniste est le seul qui soit disponible aux quatre écoles d'hygiène dentaire qui existent au Canada: à l'Université Dalhousie, à l'Université de Toronto, à l'Université du Manitoba et à l'Université d'Alberta.

Mlle Berry, qui est elle-même diplômée de l'Université Columbia, fait remarquer que le Canada a de plus en plus besoin de personnel hautement qualifié dans le domaine de l'hygiène dentaire. Nous avons donc besoin de programmes d'études plus avancés, dit-elle.

Chronique internationale

Congrès de l'ARPA à Berlin ouest

Le 18ème congrès de l'ARPA internationale se tiendra au Kongress Haus à Berlin ouest, du 22 au 26 mai 1966. (L'ARPA est l'Association internationale pour les recherches en paradontopathies). Il y aura des communications sur l'épidémiologie des maladies périodentaires; un panel sur "Les faillites du traitement des paradontopathies;" de même que des conférences sur les nouvelles techniques chirurgicales, les greffes, les flaps muqueux, les chirurgies vestibulaires et la ré-implantation. Il y aura aussi trois communications portant sur les paradontopathies des enfants, des exhibits scientifiques, et des films. Les congressistes auront accès à un système de traduction simultanée. Pour plus amples informations, communiquer avec le Professeur A.-J. Held, 30 rue Lombard, Genève, Suisse.

Congrès de l'ORCA en Italie

On invite les dentistes canadiens à participer au prochain congrès de l'ORCA tenu à Perugia, Italie, du 3 au 9 juin 1966. ORCA désigne l'Organisation européenne de recherches sur le fluor et sur la prévention de la carie. Le thème principal de la réunion sera un symposium traitant

des relations qui peuvent exister entre les hydrates de carbone et la nutrition, les standards économiques, et la carie dentaire. Les Canadiens qui désireraient présenter des communications ou simplement recevoir de plus amples informations, devront communiquer avec le Professeur A. Seppilli, Instituto d'Igiene della Università, Casella Postale No. 150, Perugia, Italie.

Invitation de la Turquie aux dentistes canadiens

Les dentistes canadiens sont cordialement invités à se rendre au 8ème Congrès dentaire national turc qui se tiendra à Istanbul du 19 au 22 juillet 1966. On projette un programme scientifique intéressant. Il sera aussi possible de visiter les endroits d'intérêt historique et touristique à Istanbul, de même que dans les autres parties de la Turquie.

On demande aux dentistes canadiens qui aimeraient présenter des conférences de bien vouloir soumettre leurs textes avant le 1er mai 1966, de façon à en permettre la traduction et l'impression.

Pour plus de détails il faut écrire à M. Yavuz Elitez, secrétaire général, 8ème Congrès dentaire national turc, Halaskargazi C. no 216-2, Osmanbey, Turquie.

Les dentistes britanniques obtiennent une augmentation

Les nouveaux taux des soins dentaires dispensés par le Service national de santé britannique sont entrés en vigueur le 16 septembre 1965. L'augmentation du traitement brut se chiffre à 3 pour cent et correspond à un relèvement moyen du traitement net de 7 pour cent.

L'augmentation, accordée après presque un an de négociations, est attribuable à la ferme persévérance de l'Association dentaire britannique.

Congrès mondial à Paris en 1967

Les dentistes de toutes les parties du globe se rendront à Paris pour le 14ème con-

Le Centre national des Industries et des Techniques de Paris, où se tiendra le 14ème congrès dentaire mondial qui aura lieu du 7 au 14 juillet 1967.



Heurard

grès mondial que la Fédération dentaire internationale tiendra à Paris en 1967.

Les séances du congrès, qui se déroulera du 7 au 14 juillet, auront lieu au Centre National des Industries et des Techniques.

Les dentistes canadiens qui se proposent d'assister au congrès devraient réserver leurs chambres d'hôtels le plus vite possible. Pour tout renseignement, écrire à Jacques Charon, 12 rue du 4 Septembre, Paris 2e, France, ou à G. H. Leatherman, secrétaire général, Fédération dentaire internationale, 35 Devonshire Place, Londres W.1, Angleterre.

Congrès dentaire australien

Le 18ème Congrès dentaire australien se tiendra à Melbourne du 27 février au 3 mars, 1967.

Cours post-scolaires à New York

Un nombre considérable de cours de perfectionnement de toutes sortes auront lieu durant l'hiver, sous les auspices de la First District Dental Society. Pour renseignements additionnels, communiquer avec J. J. Adelson, First District Dental Society, Statler Hilton Hotel, 7th Avenue and West 33rd Street, New York 1, New York, E.-U.

Hygiène publique

Amélioration de la santé dentaire des enfants d'âge pré-scolaire de Vancouver

Le Département de la santé publique de Vancouver et les dentistes de cette municipalité ont accompli des progrès importants dans la lutte qu'ils mènent pour sauvegarder la santé dentaire des enfants d'âge pré-scolaire de cette municipalité. Le directeur dentaire municipal, S. J. Gallagher, vient de publier des statistiques qui démontrent que l'on a examiné 7,801 enfants d'âge pré-scolaire l'an dernier. C'est un record pour son département. Là-dessus, 750 enfants ont été traités par leurs propres dentistes, 3,832 ont été traités dans les cliniques municipales, alors que 2,656, soit 34.3 pour cent, n'avaient besoin d'aucun traitement au moment de leur examen.

On a examiné 12,500 enfants de 1ère année l'an dernier, dont 5,803, soit 46 pour cent, n'avaient aucun défaut dentaire. Les statistiques de 1963, tout comme celles de 1962, représentent une amélioration marquée sur 1953 alors que 30 pour cent seulement de ces enfants étaient exempts de défauts dentaires.

Le docteur Gallagher croit que les statistiques que l'on fera sur la totalité de la population scolaire de Vancouver montre-

ront une amélioration comparable à celle que l'on note chez les enfants d'âge préscolaire.

Malheureusement, on remarque que dans certaines sections de la ville on se fait peu traiter bien qu'on en ait beaucoup besoin. "Il y a plusieurs explications à ce phénomène," dit le Dr Gallagher. Entre autres, des problèmes de langues, des difficultés de transport, et un manque d'éducation des patients en hygiène dentaire."

"Une partie de la population ne reçoit pas les soins dont elle a besoin, bien que ceux-ci soient disponibles," dit le Dr Gallagher. "Pour atteindre ces gens, il faudra prendre des moyens nouveaux et leur faire comprendre les bienfaits de la santé dentaire."

Amélioration de la santé dentaire et problème démographique à Toronto

Les statistiques publiées dans le rapport du directeur dentaire de la ville de Toronto, le Dr H. S. Grey, indiquent qu'il y a une amélioration notable dans le niveau de santé dentaire des enfants qui se présentent à l'école maternelle à Toronto. Cette amélioration est attribuable à 10 années d'efforts portant sur l'éducation dentaire, l'examen et les traitements.

Le rapport compare les index établis en 1954 et en 1965 chez des enfants de cinq ans de Riverdale: n'avaient aucun défaut dentaire, 19.05 en 1954 et 47.13 pour cent en 1965; pas de caries, 24.76 et 50.95 pour cent; perte de dents temporaires, 42.86 et 24.84 pour cent; dents permanentes ou temporaires ayant à être obturées, 3.30 et 1.66; enfants exempts de caries, 14.29 et 35.67 pour cent; indice DMF par enfant, 5.40 et 3.48.

Bien que ces résultats soient encourageants et démontrent une amélioration générale de la santé dentaire, le Dr Grey croit qu'un recul est inévitable à moins que l'on puisse augmenter le nombre du personnel du département de santé de Toronto d'une façon suffisante pour faire face aux demandes de plus en plus considérables que pose l'augmentation de la population. Celle-ci dépasse maintenant 124,000.

En 1964, les dents de 16.09 pour cent des enfants d'âge scolaire de la ville ont

été négligées complètement. Le Dr Grey fait aussi remarquer qu'un nombre de plus en plus grand d'enfants plus âgés ne peuvent se permettre de se faire traiter chez leur propre dentiste. Ces enfants ne peuvent pas non plus se faire traiter ailleurs, car la division dentaire ne peut faire plus que ce qu'elle fait actuellement.

Le Dr Grey ne recommande qu'une augmentation modérée du nombre des cliniciens, car il croit que l'on peut s'attendre à ce que les mesures préventives portent fruits elles aussi.

Economie

Clinique fermée dans la région de Los Angeles

L'Association dentaire de Southern California fait savoir que l'on vient de créer une clinique fermée à Santa Anna dans laquelle seront traités les bénéficiaires des programmes de l'Union des commis de l'alimentation.

Les administrateurs du fonds prétendent que cette mesure a été rendue nécessaire parce que seul, un tout petit nombre de praticiens acceptent de traiter les bénéficiaires du programme dans leurs cabinets privés.

Par ailleurs, les dentistes du Orange County de Californie prétendent que cette mesure est le résultat direct de la campagne intensive qu'a menée le Council on Dental Information contre le système de clinique libre. Le Conseil exécutif de l'Association dentaire de Southern California prétend que le Council on Dental Information ne cherche qu'à semer la discorde.

Recherches

Décoloration dentaire due à la tétracycline

Deux à trois pour cent des enfants d'âge scolaire sont affectés de décoloration des dents causée par les antibiotiques. Dans

certaines centres pédiatriques la proportion atteint 27 pour cent. Ces chiffres émanent d'un symposium tenu à Philadelphie en mai dernier, et qui groupait 60 hommes de science américains et britanniques. Le symposium a été tenu sous le patronage du département de pédiatrie du Jefferson Medical College, et se proposait d'évaluer les connaissances actuelles relatives aux décolorations dues à la tétracycline.

Il appert qu'une décoloration dentaire évidente peut se produire chez les enfants dont la mère a reçu de la tétracycline après le quatrième mois de la grossesse. La tétracycline administrée aux enfants de moins de sept ans peut aussi donner une décoloration semblable, des dents permanentes aussi bien que des dents temporaires. Cependant, la décoloration la plus dommageable au point de vue esthétique se produit lorsqu'on administre de la tétracycline aux enfants de moins de cinq ans. Il ne faudrait pas employer ces médicaments durant cette période à moins qu'il ne soit clair que le risque de décoloration dentaire soit justifié.

Certaines formes de tétracycline semblent décolorer de façon plus marquée que d'autres. L'oxytétracycline par exemple, décolore de façon moins marquée et moins fréquemment que les autres tétracyclines. Cependant, il faudra d'autres études cliniques avant qu'il soit possible de préciser les différences qui existent entre les différents analogues de la tétracycline, de même que la dose minimum nécessaire à la décoloration.

Des patients ont pris des actions en dommages à la suite de décoloration dentaire consécutive à l'emploi de tétracycline, et depuis deux ans, les directives qui accompagnent le médicament comportent des avertissements relatifs aux dangers de décoloration dentaire.

Brosses à dents pour astronautes

Au cours de leurs excursions spatiales de longue durée, les astronautes Gemini ne pourront probablement pas employer de dentifrice ni même rinser leur bouche avec de l'eau. Ils auront cependant une brosse à dents avec stimulateur interdentaire.

Les dirigeants du U.S. National Aeronautics and Space Administration, conscients de l'importance de l'hygiène dentaire durant les envolées spatiales, ont d'abord cru qu'il faudrait se contenter d'employer un stimulateur inter-proximal en caoutchouc. Des études plus récentes effectuées au centre aéronautique de Brooks au Texas, ont établi l'efficacité de l'emploi d'une brosse à dents sèche et de soie dentaire. Pour les périodes de courte durée, l'emploi de ces instruments est presque aussi efficace que la méthode conventionnelle qui consiste à employer un dentifrice et à rinser à l'eau. Ils permettent d'enlever les plaques bactériennes de façon beaucoup plus efficace qu'en employant de la gomme à mâcher, et l'impression subjective de propreté est de beaucoup supérieure. Le stimulateur interproximal remplace la soie dentaire de façon satisfaisante.

Le caoutchouc naturel que l'on emploie habituellement dans la fabrication des stimulateurs inter-proximaux perd ses propriétés naturelles, devient cassant durant les envolées spatiales. On a donc employé un caoutchouc à base de silicone, le Silastic, préparé par la Compagnie Dow-Corning, pour fabriquer les pointes des stimulateurs inter-proximaux. Ce sont ces pointes de caoutchouc, fixées sur des brosses ordinaires en nylon, qui serviront au maintien de l'hygiène dentaire des astronautes Gemini, au cours de leurs missions spatiales.

Prévention, fluoruration et malformations congénitales

Lors d'une communication faite à la 43ème réunion générale de l'International Association for Dental Research, à Toronto, en 1965, le docteur Castaldi d'Edmonton a insisté sur le fait que les traitements dentaires préventifs sont spécialement importants pour les enfants atteints de malformations congénitales. En présence de ces malformations, les dents temporaires montrent souvent un taux de carie supérieur à la moyenne. Il est donc spécialement important que ces enfants puissent profiter de la fluoruration.

Les statistiques préparées à l'Université d'Alberta par le docteur Castaldi, portent

sur l'histoire de cas de 13,011 enfants nés à l'hôpital universitaire d'Alberta. L'incident le plus fréquemment rencontré est la naissance prématurée. Elle s'est produite une fois sur 12. Lorsqu'on les examine plus tard, la moitié de ces prématurés présentent des défauts dans la formation à l'émail de leurs dents temporaires.

Un nouveau-né sur 50 souffre de jaunisse à sa naissance. Mais cette maladie n'affecte pas l'émail dans la moitié des cas. Le Dr Castaldi rapporte en outre avoir enregistré une fissure palatine ou un bec de lièvre sur 600 naissances, alors qu'un enfant sur 1,500 avait une dent à sa naissance.

"Les parents dont les enfants sont prématurés ou souffrent de jaunisse à la naissance devraient faire spécialement attention aux dents de leurs enfants. S'ils ne vivent pas dans une ville dont l'eau est fluorée, ils doivent donner quotidiennement à leurs enfants des suppléments de fluor. Aussitôt que possible, c'est-à-dire vers un an et demi, les parents devraient commencer à brosser les dents de leurs enfants avec un dentifrice fluoré. Comme tout enfant normal, ils devraient visiter leur dentiste pour la première fois entre l'âge de deux et trois ans et faire protéger leurs dents avec des applications topiques de fluor."

Publication relative aux aphtes

Le Public Health Service des Etats-Unis vient de publier la brochure *Canker Sores and Other Oral Ulcerations*, qu'a préparée le National Institute of Dental Research.

On y traite de quatre genres différents d'ulcérations buccales, ayant une caractéristique commune, la tendance à la récursive.

La plus courante, l'aphte, peut n'apparaître que rarement ou au contraire, se reproduire toutes les semaines ou tous les jours. Les aphtes sont habituellement dûs au virus de l'herpès simplex, occasionnellement aussi à un groupe de plusieurs virus. La maladie peut débiter chez l'enfant dès l'âge de 1 à 3 ans.

Les aphtes récidivants semblent se reproduire plus souvent chez les femmes

que chez les hommes. On en rencontre souvent plusieurs cas dans la même famille. Connue aussi sous le nom de stomatite aphteuse, cette infection se manifeste par des éruptions récidivantes d'ulcères aux muqueuses de la bouche ou aux lèvres. Bien que la cause précise reste encore indéterminée, on l'attribue actuellement à un micro-organisme.

L'érythème polymorphe, moins courant mais plus grave, est un autre genre d'ulcération qui affecte surtout les enfants et les jeunes adultes. Les rougeurs peuvent apparaître sur n'importe quelle partie du corps, et le patient est généralement malade. Ici aussi, la cause est mal connue, mais on croit généralement qu'il s'agit d'une infection bactérienne ou virale, d'une allergie ou d'une avitaminose.

Le pemphigus est l'une des ulcérations buccales les plus graves. Heureusement, il est relativement rare. Il peut être aigu et malin, ou bien chronique et bénin. Il atteint surtout les personnes d'âge mûr et montre une certaine prédilection raciale. La cause en est encore inconnue.

On peut obtenir gratuitement un exemplaire de la brochure *Canker Sores and Other Oral Ulcerations* (publication du PHS no 1329), en s'adressant au Information Office, National Institute of Dental Research, Bethesda, Maryland, E.-U.

Corps dentaire royal canadien

Conférence du Corps dentaire royal canadien

La 16ème conférence annuelle du Directeur général du Service dentaire et des commandants d'Unité s'est tenue aux quartiers généraux des forces canadiennes, à Ottawa, du 21 au 24 novembre 1965.

Le vice-amiral K. L. Dyer, chef du personnel des Forces canadiennes était l'orateur invité à un banquet au mess de la base du CARC, à Uplands, le 23 novembre, banquet offert pour célébrer le 50ème anniversaire du Corps dentaire royal canadien. Il a retracé l'histoire du CDRC et a brossé un aperçu de l'intégration des Forces Armées.

Le brigadier Baird à Las Vegas

Le brigadier K. M. Baird, directeur général des Services dentaires des Forces canadiennes, a participé à la session annuelle de l'Association dentaire américaine qui s'est tenue à Las Vegas du 8 au 12 novembre 1965. Le CDRC était aussi représenté par les majors P. S. Sills et A. G. Taylor, actuellement attachés au Corps dentaire de l'armée américaine à Washington.

Le colonel Kearney est nommé chirurgien dentiste honoraire de la Reine

Sa Majesté la Reine vient d'approuver la nomination du colonel B. P. Kearney, assistant directeur général des Services dentaires des Forces canadiennes, au titre de chirurgien dentiste honoraire de la Reine.

Ce titre est une distinction accordée à certains officiers dentaires en reconnaissance de leurs éminents services.

Formation professionnelle pour trois officiers

L'automne dernier, trois officiers dentaires ont suivi des cours de formation professionnelle.

Le major **A. L. Kelland**, de la base du CARC au camp Borden en Ontario, et le major **L. A. Reynolds**, de la 4ème Compagnie dentaire de campagne stationnée en Allemagne, ont suivi un cours au Royal College of Surgeons de Londres, Angleterre. Le cours, commencé le 1er novembre, a duré 12 semaines.

Le capitaine **H. W. Brogan**, de la base du CARC de Greenwood, en Nouvelle-Ecosse, a suivi un cours de périodontie à l'Université du Michigan, à Ann Arbor, Michigan, du 29 novembre au 10 décembre 1965.

Retraite du capitaine Evans

Le capitaine D. H. Evans, officier administrateur du Corps dentaire royal canadien, vient de prendre sa retraite après 25 ans de service ininterrompu avec les Forces régulières de l'armée canadienne.

Enrôlé d'abord comme simple soldat en août 1940, promu lieutenant en mai 1951, le capitaine Evans a tenu des postes administratifs à divers endroits au Canada, en Corée et en Europe. Il aidera maintenant le doyen de la Faculté de chirurgie dentaire de l'Université de Toronto dans ses tâches administratives.

Le capitaine Evans est marié et père d'une jeune fille; il a élu domicile à Scarborough, Ontario.

Les montagnes et la mer — le long de la côte du Cap Breton, circuit que vous pourrez faire avant ou après le congrès national de l'ADC qui aura lieu à Halifax en juin prochain.



Practical Oral Surgery

H. B. Clark, Jr. Ed. 3. Philadelphia, Lea and Febiger, 1965. (Available from Macmillan Co. of Canada Ltd., Toronto) 503 p. Illus. \$11.00

Dr. Clark's book first appeared in 1955, and it provided an excellent guide for teachers of oral surgery. This latest edition will certainly continue to do this. It is an excellent text which is well organized, extremely well illustrated and beautifully printed. It does not contain any redundant material and therefore makes for easy reading.

I consider this book good for dental undergraduates as well as graduate students in oral surgery because it certainly "passes the wisdom of the ages along to the youth of today, allowing them to profit by the accumulated wealth of experience of all who have gone before."

At the end of every chapter, except the first, there is a very adequate list of references. These are for the most part recent and authoritative. Such references provide a wealth of further material for research and study.

I was surprised that discussion of 'disposable needles' was omitted from chapter 4 (instruments and their use) and chapter 5 (sterilization, asepsis and supplies). I hope this will be corrected in subsequent editions.

I was also particularly interested to read Dr. Clark's comments regarding aspirating syringes on pages 251 and 252. I tend to agree with the author's viewpoint. Nevertheless, as a teacher of oral surgery, I feel that I must encourage the use of aspirating syringes as much as possible, particularly where their employment is definitely indicated.

There is no mention of oxygen and its role in dental and oral surgery practice. Surely no text on oral surgery can ignore the part that oxygen plays in the treatment of emergencies and complications that occur in the dental office. It is the responsibility of oral surgery teachers to advise and encourage all dentists to have oxygen available in their offices.

Chapter 14 on drugs and pharmaceutical preparations, as expected, is rather sketchy and serves merely as an introduction to

further study of this subject. It does, however, contain basic information which will stimulate the student to pursue further investigation.

Dr. Clark perpetuates the fallacy that scopolamine hydrobromide invariably causes hallucinations and frequent amnesia. The fact that it may cause the latter is a distinct advantage. Although I have employed this drug pre-operatively for about 15 years, I have never observed hallucinations when scopolamine is used in the proper dosage.

The use of Ward's Pack for relieving the pain of dry socket sounds interesting and deserves further trial. Apparently petrolatum is used to prevent hardening and facilitate removal of the pack.

I congratulate Dr. Clark for providing a well organized and extremely well written textbook. Every practising dentist can use this book to good advantage. I also strongly recommend it to the undergraduate student.

A. A. Antoni

The Human Dentition Before Birth

B. S. Kraus and R. E. Jordan. Philadelphia, Lea and Febiger, 1965. (Available from The Macmillan Co. of Canada Limited, Toronto) 218 p. Illus. \$16.50

The stated aim of this work is "to enable the student to visualize the changing morphology of the developing crown [of a tooth], to come to recognize the individuality of each tooth in its dynamic growth process . . . and to gain some measure of appreciation of the vast potentialities of the dentition for further biological research," and with relatively minor reservations this reviewer considers that the authors have effectively achieved their objective.

The subject matter is obviously the fruit of years of patient and extremely tedious scientific enquiry, and the result is a new dynamic and biological approach to the previously dull and empirical subject of tooth morphology—a topic associated too often in dental school curricula with the increasingly unfashionable rote of repetitive tooth-carving.

The production standards of this not-expensive book are good. The authors' literary

style is easily readable, references are abundant, and the print is well laid out and easily visualized on a high quality paper. Perhaps the finest technical feature is the standard and presentation of the accompanying illustrations, which are excellent. They are arranged to follow each individual tooth development in serial fashion, thereby producing a 'time-lapse' photographic effect worthy of the best Disney nature studies.

Justifiable criticism of such an excellent initial effort is not easily come by, yet is essential for the authors' future consideration in a work which will obviously achieve several editions. The introduction is unnecessarily long and the obvious scientific value of the succeeding chapters renders superfluous the authors' semi-apologetic justification of the values of basic scientific investigation as compared with applied research. Indeed, the readers of such a detailed scientific work in this particular field are more than likely to be fellow basic-scientists, thus relegating such argument to the category of the cartage of coal to Newcastle. Exception could also be taken to the tendency for the same theories and arguments to reappear in widely separated parts of the book, although this of course could represent deliberate accentuation of the specific theme involved.

The use of zoological terminology to describe the intimate detail of tooth morphology is perhaps unavoidable, as purely dental terminology is too generalized for the degree of detail into which the authors enter. It would, however, be preferable if the authors prepared their reader for the impact of this terminology by blatantly stating its necessity, rather than lulling him into an initial sense of false security by their statement in earlier pages that "since this book is designed primarily for dental students [the authors] have abided by dental usage in terminology."

Finally, the authors repeat in several places that the work is aimed at the 'dental student,' which would by common usage imply the undergraduate. Again they probably are overly self-effacing in assessment of their level of scientific treatment of this subject. The depth of detail makes this work unsuited for intensive and systematic study by the undergraduate. The original concepts and scientific facts put forward by the authors will undoubtedly reach the undergraduate in a simplified form by inclusion in the relevant textbooks on this important subject, but any undergraduate could justifiably consider himself unfortunate if such a text became required reading. In this reviewer's opinion the book—taken in its entirety — is written at a graduate level.

To summarize, this is an excellent book which gives a dynamic biological face-lift to the subject of tooth morphology. It is a highly scientific work by high-grade scientists, which will certainly be read by those who are 'dental students' in the broad sense,

but in whom the sustained reading of material at this highly scientific level will imply—alas—that most of them have left their undergraduate days far behind them!

J. D. Spouge

The Dental Pulp: Biologic Considerations in Dental Procedures

Samuel Seltzer and I. B. Bender. Philadelphia and Montreal, J. B. Lippincott Co. of Canada Ltd., 1965. 272 p. Illus. \$13.00

The authors facetiously refer to their presentation as "a big issue about a little tissue," but this serious book is no laughing matter. *The Dental Pulp* is about a subject that needed documentation for a long time and we are indebted to Seltzer and Bender for such a scholarly volume.

There is no phase of dentistry, not even exodontia (see page 101), that does not influence the pulp—all too often an innocent bystander caught in the cross-fire of dental treatments.

The subtitle "Biologic Considerations in Dental Procedures" sets the theme of this book, though the authors are, first and foremost, clinicians. The lengthy reference lists at the end of each chapter indicate that their scientific interests are not far behind.

The reader is carefully guided through the story of pulp embryology, past the hazards of environment and dental treatment, to eventual mortality or preservation in the final chapter on differential diagnosis.

The prone, sometimes with tongue-in-cheek, humour is a delight to read. Scientific theories, experimental procedures and manipulative recommendations are succinctly explained in short titled paragraphs. The histopathological photomicrographs, many of them composite, are clearly labelled and complement the written material.

By their tender treatment, Seltzer and Bender have truly fashioned a labour of love. *The Dental Pulp* will answer many of the nagging perplexities of dental practice and should be compulsory reading for all dental students.

The authors and publisher are to be complimented on the production of this fine and long awaited text.

Benjamin Sedlezky

Traitement de l'édentation totale

Pedro Saizar. Paris, Julien Prélat, 1964. 262 p. Illus. Broché Fr. 58.-, cartonné toile Fr. 68.-

Ce volume est un manuel pratique qui s'adresse aussi bien à l'omnipraticien qu'au spécialiste.

Dépourvu de tout superflu, il est conçu

dans le but d'aider ceux qui possèdent déjà de l'expérience dans l'appareillage des édentés complets.

Au moyen d'illustrations nombreuses et bien présentées, l'auteur nous permet de suivre les principales phases de la réalisation d'une prothèse. Il insiste sur un grand nombre de détails que tous connaissent bien mais qui sont, hélas, trop souvent oubliés.

L'auteur traite longuement du diagnostic, du traitement préprothétique, des techniques de prise d'empreinte, des mensurations nécessaires à la confection de prothèses fonctionnelles, du choix et du montage des dents, de rebasage et de réajustement articulaire, de réparation et de prothèses immédiates, en un mot de toutes les données essentielles à la solution des problèmes prothétiques.

Les discussions sans fin, qui n'intéressent

que les théoriciens et les chercheurs, ont été omises pour faire place aux renseignements qui intéressent tout particulièrement le clinicien.

Si l'auteur met en valeur les avantages de chacune des techniques présentées dans son volume, il n'hésite pas non plus à critiquer et même déconseiller certaines pratiques cliniques qui lui semblent douteuses: citons comme exemple, les implants trans-muqueux.

D'un intérêt incontestable pour le prosthodontiste, cet ouvrage mérite d'être lu. Il faut être reconnaissant à monsieur Pedro Saizar et à son collaborateur monsieur Lucien Lebourg d'avoir exposé, avec autant de clarté, les innombrables détails techniques concernant l'appareillage des édentés complets.

Jean Nadeau

library • bibliothèque

Additions • Acquisitions

CIBA FOUNDATION. Symposium on caries-resistant teeth. Edited by G. E. W. Wolstenholme and M. O'Connor. London, Churchill, 1965. 338 p. illus. \$12.50

CURRAN, W. J. Tracy's The doctor as a witness. Philadelphia, Saunders, 1965. 196 p. \$6.25

EUROPEAN ORGANIZATION FOR RESEARCH ON FLUORINE AND DENTAL CARIES PREVENTION. Advances in fluorine research and dental caries prevention. Vol. 3. Proceedings of the 11th Congress, Sandefjord, Norway, 7-9 July, 1965. New York, Pergamon Press, 1965. 281 p. illus. \$17.50

GROLLMAN, A. Pharmacology and therapeutics. Ed. 6. Philadelphia, Lea & Febiger, 1965. 1181 p. illus. \$16.50

HARRISON, J. D. and PODSHADLEY, A. G. Cavity preparation and impression taking; a programmed manual in dentistry. St. Louis, Mosby, 1965. 92 p. illus. \$6.25

JARABAK, J. R. Management of an orthodontic practice. St. Louis, Mosby, 1965. 275 p. illus. \$16.20

TULLEY, W. J. and CAMPBELL, A. C. A manual of practical orthodontics. Ed. 2. Bristol, John Wright & Sons Ltd., 1965. 270 p. illus. \$7.50

WAINWRIGHT, W.W. Dental radiology. Toronto, McGraw-Hill, 1965. 585 p. illus. \$19.00

WHEELER, R.C. A textbook of dental anatomy and physiology. Ed. 4. Philadelphia, Saunders, 1965. 441 p. illus. \$9.75

WORLD HEALTH ORGANIZATION. EXPERT COMMITTEE ON DENTAL HEALTH. Organization of Dental Public Health Services; report. (Technical report series No. 298.) Geneva, 1965. 44 p. \$1.00

YEAR BOOK OF ANESTHESIA 1964-1965. Edited by Stuart C. Cullen. Chicago, Year Book Medical Publishers, 1965. 444 p. illus. \$9.35

XVIIIe CONGRES FRANCAIS DE STOMATOLOGIE, Paris, 14-19 Octobre 1963. Paris, Masson & Cie, 1963. 312 p. illus. 69,80 F.

in memoriam

L. OLIVE COLE — Dr. L. Olive Cole of Winnipeg, Manitoba, died on December 10, 1965. She was 84. Born in Winnipeg in 1881, Dr. Cole graduated from Northwestern University, Chicago, in 1917. Dr. Cole is survived by two nieces, Miss Margaret Groff and Mrs. Olive Zeemel, and six nephews, Doug and Allan Groff of Winnipeg, Robert Groff of Vancouver, Ted Groff of Edmonton and John and Alan Cole of California.

JAMES LORNE CONNELL — Dr. J. L. Connell of Prince Albert, Saskatchewan, died on November 15, 1965. He was 71. Dr. Connell was born in Brandon, Manitoba, in 1894 and graduated from the Royal College of Dental Surgeons of Ontario in 1924. He practised in Govan, Saskatchewan, before going to Prince Albert where he and Mrs. Connell practised together until 1963. Dr. Connell was a former president of the College of Dental Surgeons of Saskatchewan. He served in World War I with the Canadian Field Artillery. Dr. Connell is survived by a son, Dr. George, and a daughter, Mrs. J. D. Hose.

WILLIAM P. CRAIG — Dr. W. P. Craig of Lethbridge, Alberta, died on November 15, 1965. He was 87. Born in Pennsylvania in 1877, Dr. Craig graduated from Northwestern University in 1903. He practised in Pennsylvania for about 10 years before going to Lethbridge. From 1926 until 1942 Dr. Craig lectured at the University of Alberta, making a monthly trip to Edmonton. Besides his wife, Blanche, Dr. Craig is survived by a son, W. Royce of Vancouver; three daughters, Miss Edith E. at home, Mrs. Roy Sprinkle of Monarch, Alberta, and Mrs. Harry Hughes of Lethbridge; and three grandchildren.

GEORGE LLEWELLYN FENNER — Dr. G. L. Fenner of Warwick, Ontario, died accidentally in November 1965. He was 82. Dr. Fenner practised for many years in Michigan before retiring in Warwick. He is survived by one sister in Detroit, several nieces and nephews, including a nephew, Lorne Fenner of Forest, Ontario.

JOHN DOUGLAS FERGUSON — Dr. J. D. Ferguson of Ottawa died on November 18, 1965, at the age of 61. He was born in Cumberland, Ontario, in 1904 and graduated from the University of Toronto in 1934. After spending a year at the Western Hospital, Toronto, as an intern, Dr. Ferguson established a practice in Ottawa where he stayed until his death. He is survived by his wife, Anne, and four daughters, Mrs. Hugh McCord of Ottawa, Miss Charlotte of Montreal, and the Misses Margaret and Jean of Ottawa.

S. FISZHAUT — Dr. S. Fiszhaut of Vancouver died on October 25, 1965. He was 59. Born in Warsaw, Poland, in 1906, Dr. Fiszhaut graduated from Tufts University in 1951.

DONALD RUSKIN FREIR — Dr. D. R. Freir of Niagara Falls, Ontario, died on November 16, 1965, at the age of 60. Dr. Freir was born in South Cayuga, Ontario, and graduated from the Royal College of Dental Surgeons of Ontario in 1928. He was president of the Niagara Falls Dental Society from 1959 to 60. Besides his wife, Mary Alexina, Dr. Freir is survived by a daughter, Mrs. Theodore Sandford of Buffalo, New York; a son, Donald Noel of Halifax, Nova Scotia; and three grandsons, Ronald Sandford and Donald and James Freir.

F. W. GLASGOW — Dr. F. W. Glasgow, formerly of Winnipeg, died in British Columbia in November 1965. He was 90. Dr. Glasgow was born in Ontario in 1875 and graduated from the Royal College of Dental Surgeons of Ontario in 1898.

HARRY ROBINSON GRANT — Dr. H. R. Grant of Vancouver, British Columbia, died on December 23, 1965. He was 71. Born in Kemptville, Ontario, in 1894, Dr. Grant graduated from North Pacific Dental College, University of Oregon, in 1923. During World War I he served overseas with the

Royal Canadian Dental Corps. Before retiring from practice in 1950, Dr. Grant had been president of the Vancouver Dental Society and of the British Columbia Dental Association. He is survived by his wife, Gertrude; a son; a daughter; and six grandchildren.

RALPH EMERSON HENNIGAR — Dr. R. E. Hennigar of Chester, Nova Scotia, died on October 21, 1965, at the age of 68. He was a graduate of Dalhousie University. He served overseas during World War I. Dr. Hennigar is survived by his wife, Marion; a son, R. E. of Chester; a daughter, Mrs. Peter Hodges of Chester; and three grandchildren.

MAUDE SPENCE HOLWAY — Dr. Maude S. Holway died at the age of 63 in Los Angeles (Westwood), California, on October 13, 1965. Dr. Holway graduated from the University of Toronto in 1924 and practised in Toronto and Winnipeg before going to Seattle where she practised intermittently until 1951. Her affiliations included the Association of American Women Dentists and the Canadian Women's Dental Honorary. Dr. Holway is survived by three daughters, Mrs. Allen Rubbert, Costa Mesa, California, Mrs. Keith Pickrell of Seattle, Washington, and Mrs. James Place of Los Angeles; one son, James Evan, Balboa Island, California; two sisters, Dr. Mildred (Dr. Edgar) Buchanan of Hollywood, California, and Mrs. B. S. Fisher of Seattle; and three grandchildren.

JULES GUY LAROCHELLE — Le Dr J. G. Larochelle de Portland, Maine, âgé de 44 ans est décédé le 19 octobre 1965. Il naquit à Biddeford, P. Qué., en 1921 et obtint le doctorat en chirurgie dentaire à l'Université de Montréal en 1950. Docteur Larochelle fut officier du US Marine Corps et servit dans les Forces aériennes des États-Unis durant la dernière guerre mondiale. Il est survécu par son épouse Michèle, deux filles Dany A. et Chantal D., ainsi que par son père, le Dr J. R. Larochelle, et par son frère, le Dr Ralph J. Larochelle, tous deux de Biddeford.

JOHN BELDON LUNDY — Dr. J. B. Lundy of Port Perry, Ontario, died on November 8, 1965, at the age of 83. He was born in Langford, Ontario, in 1882. Following graduation from the Royal College of Dental Surgeons of Ontario in 1905, Dr. Lundy practised in Clinton and Brantford, Ontario, before going to Port Perry. Sur-

viving are a daughter, Mrs. D. F. Jackson of Toronto, and a brother, T. H. D. Lundy of Vancouver.

FREDERICK GEORGE MANN — Dr. F. G. Mann of St. Stephen, Nova Scotia, died on November 14, 1965, in his 82nd year. Dr. Mann was born in Petitcodiac, New Brunswick, in 1884. He graduated from the Baltimore College of Dentistry, University of Maryland, and practised in Baltimore for a number of years before opening the New York dental parlor in Halifax where he practised until his retirement ten years ago. During the First World War he served as a captain in the Canadian Dental Corps. Dr. Mann is survived by a daughter, Mrs. Dorothy Taylor of Moncton; a son, Donald in Arizona; and four grandchildren.

FRANCIS JOSEPH McCURRY, Sr. — Dr. F. J. McCurry, Sr., of Toronto died on November 8, 1965. He was 65. Dr. McCurry was born in Toronto in 1900 and graduated from the University of Toronto in 1935. Surviving Dr. McCurry are his wife, Harriet; two sons, Dr. Francis of Midland and James; and his mother, Mrs. Frank McCurry.

JOHN EDWIN REINHORN — Dr. J. E. Reinhorn of Regina, Saskatchewan, died in November 1965. Born in Saskatchewan in 1903, Dr. Reinhorn graduated from the University of Oregon (North Pacific College) in 1928. He practised in Gravelbourg, Saskatchewan, before going to Regina.

LAWRENCE NICHOLSON RYAN — Dr. L. N. Ryan of Bracebridge, Ontario, died on November 15, 1965, at the age of 68. Dr. Ryan was born in Bracebridge, Ontario, in 1896 and graduated from the Royal College of Dental Surgeons of Ontario in 1921, after serving in the Armed Forces in 1917-1918. He practised in Toronto and later in Bracebridge. Dr. Ryan is survived by his wife, Pearl Kathleen.

PERCY ST. CLAIR SMITH — Dr. P. St. Clair Smith of Toronto died on November 16, 1965, at the age of 91. He was born in Cayuga, Ontario, in 1873 and graduated from the Royal College of Dental Surgeons of Ontario in 1896. He served during World War I as a lieutenant in the Navy, and practised in Simcoe, Port Rowan and Toronto. Dr. Smith is survived by his son, Douglas C. M. Smith.

Cavité statique mandibulaire

Jean N. Fontaine, DDS, D. Forest, DDS et

Marcel Labelle, DDS, Montréal, P. Québec

Un examen radiologique de routine peut déceler la présence d'une lésion osseuse rare qu'on pourrait nommer cavité statique mandibulaire. Cette cavité, qui n'a pas de symptôme ni d'histoire de traumatisme, se découvre du côté lingual de la branche horizontale de la mandibule, aux environs de l'angle. Cette lésion diffère par diverses caractéristiques d'un kyste traumatique. La radiographie panoramique constitue la méthode idéale pour déceler cette anomalie. L'article rapporte un cas.

An asymptomatic static bone cavity was discovered near the right angle of the edentulous mandible of a 76

year old male during routine examination for complete denture service. Surgical excision was not attempted on account of the patient's advanced age and the state of his health. Static bone cavities occur predominantly in older males and must be distinguished from cystic cavities, particularly those of traumatic origin. The latter have a history of trauma, they grow slowly, they occur above the mandibular canal and they invade the cancellous bone. Static bone cavities, on the other hand, always occur on the lingual aspect and beneath the mandibular canal. Panoramic radiography is ideal for their discovery.

Le dentiste, au cours d'un examen radiographique de routine, décèle parfois une zone translucide située à la région postérieure du corps de la mandibule. Aucun symptôme subjectif. La palpation de la région peut révéler une légère dépression

au bord inférieur de la mandibule. Cette anomalie se trouve surtout chez des patients de plus de 30 ans et de sexe masculin. Cette entité est plutôt rare, puisque la littérature n'en mentionne qu'une cinquantaine de cas (Tableau 1).

TABLEAU 1 Tableau des cas rapportés dans la littérature.

Auteurs	Nombre de cas	Age	Sexe	Site	Apparence radiologique	Histoire	Histopathologie	Thérapie
Stafne, E. C.	34	33-72	28 H 6 F	inf. c.m.	ronde ou ovulaire, corticale, 1 à 3 cm.	cor- asymptomatique atraumatique		
Bernstein, H. F. et al	1	32	H	inf. c.m.	ovulaire, 3cm. corticale	asymptomatique	espace vide, corticale normale	exploration chirurgicale
Rushton, M. A. ¹³	1	40	H	inf. c.m.	ovulaire			
Amaral, W. J. & Jacobs, D. S.	1	50	H	inf. c.m.	ovulaire, 2.2x1.5 cm. corticale	asymptomatique	tissu glandulaire	exploration chirurgicale
Choukas, N. C. & Toto, P. D.	1	60	H	inf.	ovulaire		masse encapsulée tissu norm. sub-maxillaire	exploration chirurgicale
Fordyce, G. L.	2	48-40	2 H	inf. c.m.	ovulaire 15 x 18 mm. 4 x 25 x 1.5 cm.	asymptomatique	tissu norm. sub-maxillaire	exploration chirurgicale
Hays, Harry	1	56	H	inf. c.m.	ronde, corticale		tissu glandulaire	exploration chirurgicale
Thoma, K. H.	1	28	H	inf. c.m.	ovulaire, corticale	asymptomatique atraumatique	dysplasie tissu conf. ganglion réactif	exploration chirurgicale
Peterson, L. W.	1	45	H	inf. c.m.	ovulaire, corticale	atraumatique	rien dans la cavité	exploration chirurgicale
Richard, E. L. & Ziskind, Joseph	1	46	H	inf. /34	ronde, corticale		masse solide, tissu gl. sublinguale	exploration chirurgicale
Seward, G. R.	2	43	F	inf. c.m.	ovulaire 1.1 x 74 cm.			
		43	H	inf. c.m.	ronde 1.7 x 1.3 cm.	douleur augmentée, mastication A.T.M.		
Olech, Eli & Arora, B. K.	1	72	H	inf. c.m.	ovulaire	asymptomatique	muscle strié, tissu conf. vais. sang.	exploration chirurgicale
Penhale, K. W. ¹⁴	1	jeune adulte	H	inf. c.m.	ovulaire, corticale	asymptomatique atraumatique		
Jacobs, M. H.	3			inf. c.m.	ovulaire, corticale		tissu gl. sous-max. espace vide	exploration chirurgicale
Hayward, J. R. & A. R. F. ¹⁵	1			inf. c.m.	ovulaire, corticale 2 x 3 cm.			

FIGURE 1



L'appellation qui nous semble décrire adéquatement cette cavité osseuse serait: cavité statique mandibulaire. La littérature anglo-saxonne utilise différents termes pour nommer cette lésion: 'latent bone cyst,' 'static bone cyst,' 'static bone cavity,' 'static bone defect,' 'solitary bone cyst in the mandible,' 'latent haemorrhagic cyst,' 'salivary gland inclusion,' 'lingual mandibular bone cavity,' 'developmental lingual mandibular bone cavity' et 'developmental lingual salivary gland depression.'

REVUE DE LA LITTÉRATURE

Stafne,¹ en 1942, fut apparemment le premier à décrire cette anomalie. Des auteurs, depuis ce temps, ont mentionné des cas isolés. Le tableau qui suit renferme un schéma des cas rapportés et il peut fournir des renseignements sur la nature de la lésion et sa répartition selon sa localisation, l'âge et le sexe de son porteur.

CAS PRÉSENT

Patient, J. B., de race blanche, 76 ans, se présente pour examen de routine en vue de la confection d'une prothèse complète mandibulaire. Denture en très mau-

vais état: cinq dents solitaires au maxillaire, atteintes de maladie périodentaire avancée. La mandibule est édentée depuis plusieurs années et le patient n'a jamais porté de prothèse. La forme des crêtes et la muqueuse sont normales. Une radiographie panoramique révèle, du côté droit, en avant de l'angle de la mandibule, sous le canal dentaire inférieur, une zone translucide de forme ovale entourée d'une mince ligne d'os compact: dimension 10 x 15 mm. (Figure 1). L'histoire de cas ne rapporte pas de traumatisme; l'examen subjectif est négatif. Diagnostic: cavité statique mandibulaire. A cause de l'âge du patient et de son état de santé débile, aucun traitement chirurgical n'est recommandé pour cette lésion.

DISCUSSION

Le tableau du rapport de cas indique qu'il s'agit d'une anomalie de développement caractérisée par une petite lacune dans l'élaboration de l'os de la partie horizontale de la mandibule. La plupart des auteurs tiennent cette anomalie comme d'ordre congénital et, pourtant, elle n'a jamais été décelée chez des enfants. L'âge des patients varie entre 28 et 76 ans, donc une moyenne d'âge de 50 ans. Il faut donc conclure que ces lacunes osseuses se rencontrent rarement avant 30 ans.

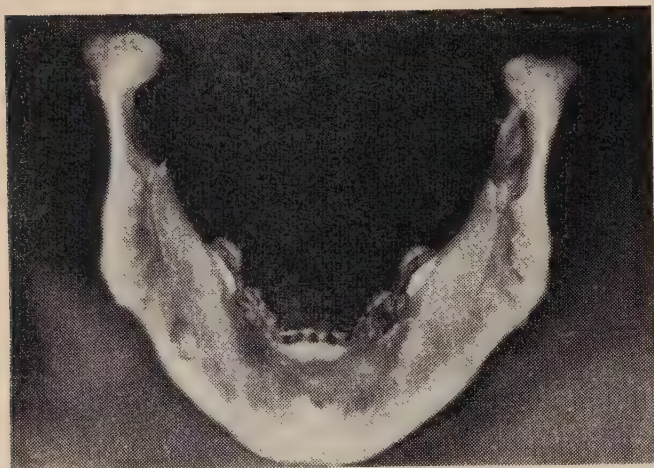


FIGURE 2

Cette cavité se trouve plus fréquemment chez l'homme que chez la femme, dans une proportion de 1 à 6; elle se rencontre aussi bien du côté droit que du côté gauche. Elle ne se situe généralement que d'un côté (Figure 2), quoique Stafne¹ rapporte un cas de bilatéralité. Constata-

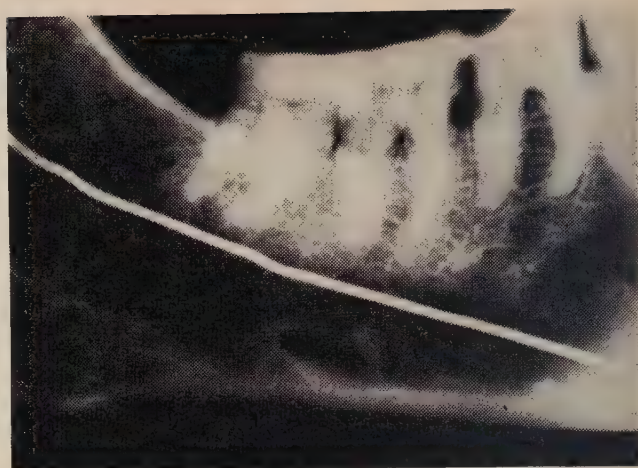


FIGURE 3

tion classique: elle est toujours située sous le canal mandibulaire et elle n'a aucune communication avec ce canal (Figure 3). Toutefois, Richard et Ziskin² rapportent un cas où la cavité se situe dans la région canine-prémolaire. Elle se loge du côté lingual (Figures 4 et 5).

L'image radiographique de cette lésion osseuse est translucide, de forme arrondie ou ovale, d'un diamètre variant entre 1 et 3 cm.; cette image révèle aussi, dans la majorité des cas, que la cavité est limitée par une mince ligne d'os compact, simulant un kyste.

Les travaux histo-pathologiques de Bernstein³, Peterson⁴ et Jacobs⁵ ont montré que la cavité est vide et bordée par un os cortical normal. D'autres auteurs^{2,5-11} y ont décelé une masse solide, encapsulée de tissu normal s'identifiant au tissu glandulaire, conjonctif ou musculaire. Les explorations n'ont rien révélé qui s'apparente à un kyste. Il est donc erroné de doter cette lésion d'une appellation qui rappelle des caractères kystiques.

Ces cavités mandibulaires statiques, découvertes par hasard, sont asymptomatiques et sans histoire de traumatisme.

La radiographie panoramique constitue la méthode idéale pour découvrir ces anomalies. Seward¹² recommande l'emploi d'une solution radiopaque (Neo-Hydrol visqueux) pour illustrer les relations susceptibles d'exister entre cette cavité et la glande sous-maxillaire. Stafne¹ a démontré à l'aide de radiographies périodiques que, même après 11 ans, la cavité n'augmente pas de volume.

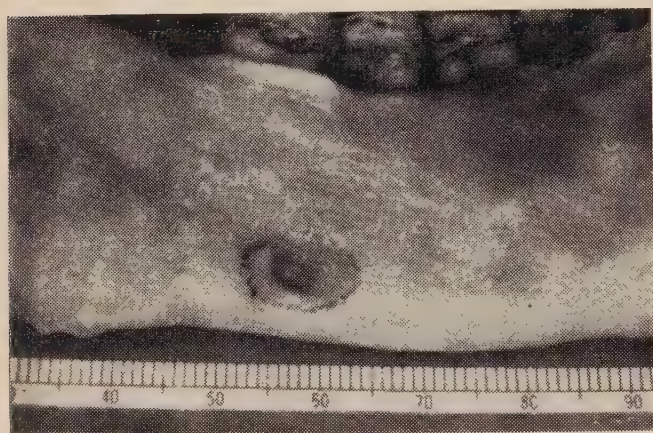


FIGURE 4



FIGURE 5

DIAGNOSTIC DIFFÉRENTIEL

Cette cavité peut se confondre avec un kyste hémorragique ou traumatique. Toutefois, elle s'en distingue par quatre caractéristiques: (1) le kyste hémorragique ou traumatique a une histoire de traumatisme; l'autre lésion n'en a pas; (2) le kyste traumatique augmente de volume; l'autre cavité est statique; (3) le kyste traumatique est situé au-dessus du canal dentaire inférieur; la cavité statique mandibulaire est toujours logée sous le canal; (4) le kyste traumatique s'élabore au sein de l'os spongieux; l'autre cavité se découvre du côté lingual de la mandibule.

RÉSUMÉ

1. Un examen radiologique de routine peut déceler la présence d'une lésion osseuse rare qu'on pourrait nommer 'cavité statique mandibulaire.'

2. Cette cavité, qui n'a pas de symptôme ni d'histoire de traumatisme, se découvre du côté lingual de la branche horizontale de la mandibule, aux environs de l'angle.

3. Cette lésion diffère par diverses caractéristiques d'un kyste traumatique.

4. La radiographie panoramique cons-

titue la méthode idéale pour déceler cette anomalie.

5. L'article rapporte un cas.

*Département de Stomatologie, section de diagnostic et de radiologie, Faculté de chirurgie dentaire, Université de Montréal.

1. Stafne, E. C. Bone cavities situated near the angle of the mandible. *J.A.D.A.* 29:1969, 1942.
2. Richard, E. L. et Ziskind, Joseph. Aberrant salivary gland tissue in mandible. *Oral Surg., Oral Med. & Oral Path.* 10:1086, 1957.
3. Bernstein, H. F., Lam, R. C. et Pomije, F. W. Static bone cavities of the mandible: review of the literature and report of a case. *J. Oral Surg.* 16:46, 1958.
4. Peterson, L. W. Cystic cavity in the mandible: report of a case. *J. Oral Surg.* 2:182, 1944.
5. Jacobs, M. H. Traumatic bone cyst. *Oral Surg., Oral Med. & Oral Path.* 8:940, 1955.
6. Amaral, W. J. et Jacobs, D. S. Aberrant salivary gland defect in the mandible. Report of a case. *Oral Surg., Oral Med. & Oral Path.* 14:748, 1961.
7. Choukas, N. C. et Toto, P. D. Etiology of static bone defects of the mandible. *J. Oral Surg., Anes. & Hosp. D. Serv.* 18:16, 1960.
8. Fordyce, G. L. Probable nature of so-called latent haemorrhagic cysts of the mandible. *Brit. D.J.* 101:40, 1956.
9. Hayes, Harry. Aberrant submaxillary gland tissue presenting as a cyst of the jaw. Report of a case. *Oral Surg., Oral Med. & Oral Path.* 14:313, 1961.
10. Thoma, K. H. Case report of a so-called latent bone cyst. *Oral Surg., Oral Med. & Oral Path.* 8:963, 1955.
11. Olech, Eli et Arora, B. K. Lingual mandibular bone cavity. *Oral Surg., Oral Med. & Oral Path.* 14:1360, 1961.
12. Seward, G. R. Salivary gland inclusions in the mandible. *Brit. D.J.* 108:321, 1960.
13. Rushton, M. A. Solitary bone cysts in the mandible. *Brit. D.J.* 81:37, 1946.
14. Penhale, K. W. Cysts of the maxilla and mandible, diagnosis and treatment. *J. Oral Surg.* 1:138, 1943.
15. Hayward, J. R. et Arentz, R. E. Bone cysts of the jaw region. *D. Clin. N. America* p. 127, mars 1963.

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Peggy's Cove, près de Halifax. Visitez ce joli village de pêcheurs pendant votre séjour à l'occasion du congrès national de l'ADC en juin prochain.



Use of oxidized regenerated cellulose saturated with thrombin- NaHCO_3 for haemostasis in exodontia

Absorbable oxidized regenerated cellulose saturated with thrombin dissolved in 0.5 per cent sodium bicarbonate has proved to be an effective haemostatic agent when placed directly against the point of bleeding following dental extractions in normal patients as well as those afflicted with blood disorders. The observance of normal precautions nevertheless remains a mandatory requirement in patients with blood dyscrasias. These precautions include: complete medical and dental evaluation by the dentist and haematologist prior to the operation, reassuring the patient to minimize emotional trauma, prevention and control of local infection and inflammation to hasten postoperative healing, and avoidance of excessive trauma.

L'oxyde de cellulose résorbable imprégné de thrombine en solution dans un carbonate de sodium à 0.5 pour cent est un hémostatique efficace lorsqu'on le place en contact direct avec un point d'hémorragie consécutif à une extraction dentaire. Ceci est vrai aussi bien chez des patients normaux que chez ceux qui souffrent de maladies du sang. Il faut cependant continuer d'employer les précautions habituelles chez les patients qui présentent des problèmes hématologiques. Il faut faire une étude médicale et dentaire complète avant d'opérer, réconforter le patient pour réduire au minimum le traumatisme émotionnel, prévenir et contrôler l'infection locale et l'inflammation de façon à accélérer la guérison post-opératoire, et éviter tout excès de traumatisme.

Postoperative haemorrhage is always a matter of concern to both the oral surgeon and the general practitioner, and often occasions considerable alarm to the patient and relatives. It is not uncommon to see a single dental extraction, even in a normal patient, followed by a prolonged postoperative haemorrhagic episode. The risk of haemorrhage is greatly increased when dealing with patients with blood diseases, such as haemophilia, thrombocytopenia, leukemia, and so forth. Haemorrhage in these patients is a major

problem that requires special treatment and close co-operation between the dentist and haematologist as both the type and severity of the blood disorder must be carefully diagnosed in order to plan adequate treatment measures.

The literature on haemorrhage in oral surgery and exodontia discloses that considerable attention is given to the preparation and treatment of postoperative haemorrhage by local or systemic haemostatic agents, but little or no attention is given to the understanding and applica-

tion of the different factors that participate in the complex mechanism of haemostasis. In order to manage haemorrhage and effect haemostasis in oral surgery, it is necessary to understand and apply the different principles that participate in haemostasis and comprehend the pharmacological properties of the local haemostatic agents used.

This article reviews the mechanism of haemostasis, and describes systemic and local factors that apply to the prevention and treatment of postoperative haemorrhage. Included is a description of the local haemostatic properties of oxidized regenerated cellulose gauze saturated with thrombin- NaHCO_3 solution.

MECHANISM OF HAEMOSTASIS

When the continuity of living animal tissue is broken and blood escapes from a vessel, the body is able to control bleeding through a complex haemostatic mechanism involving three main factors. These factors operate actively or passively in the prevention and control of blood loss from the vessels. They are: (1) one extravascular factor that operates from the outside directly on the vessel wall, (2) a vascular factor that resides in the vessel wall, and (3) various intravascular factors (platelets, blood coagulation, fibrinolytic and anti-fibrinolytic systems) that operate directly within the circulating blood. Immediately following the rupture of a blood vessel by trauma or surgical procedure, a complex co-ordination of these three factors leads to the arrest of bleeding in normal tissue.

In a discussion of this haemostatic mechanism Tocantins¹ states that "spontaneous arrest of bleeding involves nearly always two phases which take place regardless of the type of vessel involved."

The first phase is mainly vascular. At the site of injury an immediate vasoconstriction occurs. Intravascular pressure drops due to the escape of blood from the vessel, and there is a resultant tendency for the vessel to constrict. As blood escapes into the surrounding tissue, resistance to further haemorrhage from the vessel develops. This resistance

may be enough to produce haemostasis in small capillaries. The original vasoconstriction, due to the contraction of vascular smooth muscle following the trauma, is temporary and lasts from 15-30 seconds. This phenomenon probably occurs through an 'axonic reflex',² and is independent of platelet action.³ MacFarlane⁴ has microscopically demonstrated the constriction of capillaries immediately following a mechanical stimulation. In addition, as a result of this constriction, the speed of the circulating blood is appreciably reduced. This favours the massing of platelets around the inner diameter of the vessel and thus diminishes the lumen size of the vessel. With the appearance of the platelets the second phase begins.

In the second and mainly haemotogenous phase platelets and blood coagulation play an indispensable role. Following the constriction of the blood vessels, a massing of the platelets occurs due to their ability to adhere and agglutinate. According to Stefanini⁵ the agglutination of platelets at the site of vessel rupture may be considered the key mechanism of haemostasis. After agglutination a subsequent lysis of platelets occurs and the release of an active principle follows. This active principle has a strong vasoconstrictive action and is identified as 5-hydroxytryptamine (serotonin) by different authors.⁶ The serotonin released from the break-down of platelets acts immediately upon the blood vessels of the surrounding area, producing a generalized and persistent vasoconstriction that may last for a period of 30 minutes. In addition to serotonin, the lysed platelets release a 'thromboplastic factor' which activates the formation of intrinsic thromboplastin.⁵

It is at this point that the coagulation of the blood begins to participate in haemostasis. Phase 1 of the coagulation mechanism is concerned with the formation of thromboplastin (prothrombin activator). Extrinsic and intrinsic mechanisms are involved.⁷ In the extrinsic mechanism, tissue thromboplastin in the presence of factors V, VII, X and calcium will form the extrinsic prothrombin activator. In the intrinsic mechanism, at least eight recognized plasma factors (V, VIII,

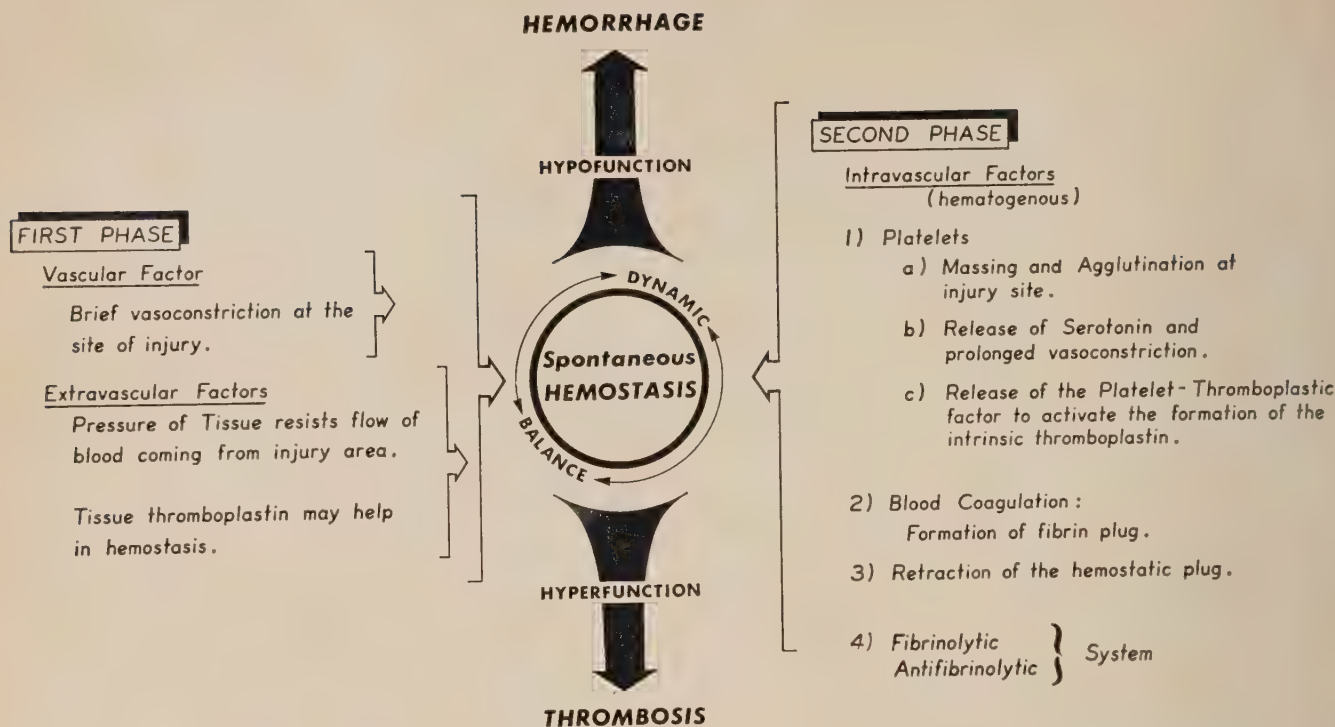


FIGURE 1 Factors participating in the haemostatic mechanism.

IX, X, XII, calcium and platelets) take part in the formation of prothrombin activator or plasma thromboplastin. Factors V and X are thought to be concerned with the development of both the extrinsic and intrinsic prothrombin activator. It is assumed that the two types of prothrombin activators are formed independently, although they have constituents in common. It is possible that they may prove to be one and the same substance.⁷ In phase 2 of the coagulation mechanism the formed prothrombin activators react with the circulating prothrombin to form thrombin. In phase 3 of the coagulation mechanism the thrombin converts circulating fibrinogen into fibrin.

Upon formation of fibrin, the fibrin threads immediately clump together the remaining intact platelets and other blood cells to form the haemostatic plug which will close the opening in the blood vessel. The next step consists of the retraction of the haemostatic plug. This retraction depends mainly on the platelets, although the mechanism of this reaction is not well known yet.⁸ Retraction of the haemostatic plug acts as a mechanical device to draw the edges together and thus assists in closing the open blood vessel.

Spontaneous haemostasis is always a result of the co-ordination and integration of the factors that participate in the different phases previously mentioned and illustrated in Figure 1. The extravascular, vascular and intravascular factors must always work together; haemostasis depends on this co-ordinated team work.

There seems to be also a compensatory mechanism between these factors which prevents spontaneous bleeding. Thus, an abnormality of one of the participating factors may sometimes account for a lack of spontaneous bleeding—providing, of course, that all other factors are normal. For example, a patient with afibrinogenaemia very rarely experiences spontaneous bleeding, even though his blood is almost incoagulable. Similarly, haemophilic patients rarely have spontaneous bleeding. On the other hand, it is very common to see severe spontaneous bleeding in patients affected by abnormality of more than one of these factors. For example, in dicumarol intoxication a hypoprothrombinaemia is accompanied by increased vascular fragility—and spontaneous capillary bleeding is very frequent.

It is hardly possible at the present time

to talk about haemostasis and blood coagulation without mentioning the fibrinolytic system. This system does not participate in haemostasis, but an increase of fibrinolytic activity may be responsible for an alteration of the haemostatic mechanism by producing lysis of the fibrin clot. The fibrinolytic system exists in plasma in an inactive form. Plasma-plasminogen can be activated by fibrinolysokinase to form plasmin, an active fibrinolytic enzyme capable of rapid destruction of fibrinogen and fibrin. The active fibrinolysin (plasmin) is inhibited by an anti-fibrinolysin (anti-plasmin) that is also present in blood and plasma.

SYSTEMIC AND LOCAL HAEMOSTATIC AGENTS

Deficiencies in the haemostatic mechanism may be corrected by two therapeutic means: systemic and local, or a combination of both. However, it should be stated that the best way to prevent postoperative haemorrhage is to prevent its occurrence by taking adequate measures. Such measures embrace careful attention to the preparation of the patient undergoing a surgical procedure, including assembly of a medical history, a thorough evaluation of the blood condition by laboratory tests, and careful surgical technique. These have been discussed elsewhere in detail.⁹⁻¹¹

The use of systemic haemostatic agents to correct an excess or a deficiency in certain patients is justified.¹² However, routine pre-operative use of these agents is not acceptable in normal patients. Even blood or blood products, one of the most effective haemostatic agents, can be harmful when used improperly. The interpretation of the laboratory blood studies carried out should indicate the proper therapeutic measures to be followed pre-operatively and postoperatively.^{9,10}

On the other hand, it is acceptable and good procedure to prescribe vitamin K as a prophylactic measure in patients with known blood diseases and excessive haemorrhagic tendencies even though the primary cause of the bleeding problem is not vitamin K deficiency. For example, after a prolonged haemorrhagic episode

haemophilic patients will have a low prothrombin concentration in the circulating blood; therefore it is wise to supply vitamin K. In cases where destruction of blood vessels has been very severe, the demand for vitamin C by the tissue is increased and it is important to supply this vitamin to assure that this deficiency is not a contributing factor to the haemorrhage.¹²

Many local haemostatic agents are used routinely. Pressure and cold is one of the simplest techniques used to effect haemostasis. Other methods include the use of a hot iron cautery, chemical caustics, and ligatures. Around 1940 a highly purified thrombin made from coagulating blood was obtained and used as a local haemostatic. The thrombin acted as an enzyme and when exposed to blood converted fibrinogen into fibrin to form a clot. Commercially prepared thrombin is a powder obtained from bovine plasma (since human thrombin is very difficult and expensive to obtain). The bovine thrombin can be used in powdered form or it can be diluted in physiological saline and used as a topical haemostatic. Both powder and solution have haemostatic activity. Both, however, are difficult and inconvenient to use as a local haemostatic in oral surgery because they are difficult to fix to a bleeding area; the powder is washed away by the blood flow and the solution cannot be maintained at the site of bleeding.

Adrenalin, acting as a powerful vasoconstrictor, can be used topically in arresting capillary bleeding. Unfortunately, the vasoconstriction produced by adrenalin is followed by a vasodilation that may be the origin of new bleeding if a good fibrin clot does not form.

Thromboplastin is less effective than thrombin as a local haemostatic agent because it acts upon the first phase of coagulation and because it requires adequate prothrombin in the blood to be effective.^{12,13} Patients with a prolonged haemorrhage have frequently a low concentration of prothrombin; thus even the strongest possible thromboplastin solution or powder applied to the bleeding area will not be of much benefit.

Several commercially prepared absorbable haemostatic materials are available

at present. These are very useful tools for preventing or arresting haemorrhage—when properly used. Oxidized regenerated cellulose products (Oxycel and Surgicel) have been found to be the most valuable of these materials. Their haemostatic actions have been tested in the laboratory and the following conclusions were reached:

1. Oxycel and Surgicel are insoluble in water, salt solutions and plasma.
2. Neither one has thromboplastic activity, and they do not act by absorbing the coagulation inhibitor.
3. They may be loosely described as fibrinoplastic agents.
4. The cellulose particles act as foreign substances in plasma.
5. Clotting begins at the particles' surface and proceeds rapidly to the formation of a layer of fibrin clot which adheres even to siliconized vessels and surfaces.

Workers in this field attribute the haemostatic effect of the oxidized cellulose to its affinity for haemoglobin.¹⁴⁻²³

Georgiade¹⁴ stated that "the oxidized regenerated cellulose dressing is a polyan-hydrogluconic acid with an affinity for haemoglobin, resulting in the formation of a gel with blood in a pH range of 3.5 to 4.5." One must question that a firm, long-lasting haemostatic clot can be formed at such a low pH, particularly as a low pH in the oxidized cellulose considerably decreases thrombin activity in vitro. On the other hand, experimental results of Tocantins and Holburn²⁴ have shown that low pH considerably increases the clotting time in nonactivated and activated plasma.

It is also difficult to understand how the affinity of oxidized cellulose for haemoglobin operates across the red cell membrane in vivo, because it would be necessary for the red cells to break down before the plug or clot would form. It does appear, however, that oxidized cellulose swells and becomes sticky when mixed with blood, thus mechanically blocking the open vessel. The haemostatic action may be caused by the following three mechanisms:

1. The formation of a mechanical fibrin-like mesh or framework for the formation of a clot;

2. The provision of a large (non-migrable) negative ionic charge in the surface of the material, attracting calcium and thus accelerating the activation of thrombin;

3. The absorption of blood into the material with swelling to form an artificial coagulum or plug.

Therefore, it may be reasoned that adding thrombin to the oxidized cellulose for the control of bleeding assures a faster and more effective way to effect haemostasis. However, Seegers²⁵ and Lucas²⁰ found that when thrombin is exposed to the oxidized cellulose, the haemostatic activity of the thrombin is considerably decreased. There are two factors which can cause this inactivation: one is the natural acidity of the oxidized cellulose, and the other may be an unidentified product of the oxidization process.²⁵ This problem has been circumvented by dissolving the thrombin powder (Parke-Davis) in a solution of 0.5 per cent sodium bicarbonate instead of physiological saline, thus increasing the pH of the thrombin-NaHCO₃ solution to 8.6. At this elevated pH the solution will neutralize the acidity of the oxidized cellulose and thrombin will retain its haemostatic activity.

The importance given here to thrombin combined with oxidized regenerated cellulose is not shared by Spouge. He states:²⁶

"The use of thrombin in clinical practice appears to have some effect, but much less than one would suppose on theoretical grounds. In normal patients the difference is minimal, as these persons can produce effective levels of thrombin by their own physiologic processes. In patients with coagulatory defects (for example, haemophiliacs) locally applied thrombin has little or no effect. This fact could be anticipated on theoretical grounds, as topically applied thrombin can only reinforce the extrinsic portion of the thromboplastin-formation system which is usually normal in such patients.

"Probably the final sealing of any given vessel is more directly a function of the intrinsic system, which is defective in haemophiliacs and which thus would not appear to be compensated for by tissue or extravascular factors. Clinically, it is found that in such patients a blood clot will form on the superficial portion of the wound and yet bleeding will continue to take place into the deeper tissues from the unoccluded ends of the damaged vessels, thereby producing

massive haematomas and bruising in adjacent tissues."

This point of view on the haemostatic effect of thrombin in haemophiliacs must be strongly questioned. It is true that topical thrombin may not be able to activate the intrinsic thromboplastin system of the first phase of blood coagulation; however, thrombin will activate the fibrinogen (which is in normal concentration in haemophilia) to form fibrin. For this to occur the thrombin- NaHCO_3 solution carried by the oxidized cellulose should be placed directly against the point of bleeding. In haemophiliacs, loose clots with continuous oozing underneath are mostly due to failure in sealing the capillary point of bleeding, and this is a consequence of faulty packing of the sockets with the haemostatic agents. Since Spouge used oxidized cellulose gauze as a vehicle for thrombin, it may be that the natural acidity of the cellulose neutralized the haemostatic property of the thrombin.

The use of absorbable haemostatic material (oxidized cellulose) plus thrombin dissolved in 0.5 per cent sodium bicarbonate has given excellent results. It has been found that carefully executed packing of the sockets with this material, following extractions in patients with disorders in the haemostatic mechanism, plays a very important role on effecting haemostasis.¹⁶⁻¹⁹ However, in patients with blood diseases these means are sometimes not enough to assure a non-haemorrhagic postoperative course. Hence, careful attention should be given to the pre-operative preparation of the patient. Moreover, the oral surgeon and the haematologist must co-operate closely in the management of these patients.¹¹ Once the surgical procedure has been completed a good examination of the operative site should be done to avoid the possibility of leaving foreign material, such as calculus, broken pieces of bone, or free soft tissue in the extraction wound. Such foreign material delays healing and increases the possibility of postoperative haemorrhage. After attending to these important details, the socket may be packed.¹⁹

The socket is dried with sterile surgical gauze. The neutralized absorbable

haemostatic material saturated in thrombin- NaHCO_3 solution is then placed in the socket. To be effective the haemostatic material must be placed directly against the point of bleeding, as the thrombin of the packing in contact with fresh flowing blood immediately converts the fibrinogen of blood to fibrin and forms a plug to seal the point of bleeding.¹⁸ The interposition of even the smallest amount of fibrin can prevent the action of haemostatic material. Thus, if the deepest point of bleeding is not sealed with the haemostatic material in the bottom of the socket, the flow of blood from this point will create continuous pressure against the packing and displace it from the socket. If the pressure is not enough to displace the packing from the socket, a severe internal haemorrhage usually occurs and the blood infiltrates through the alveolar process to the surrounding soft tissue area.¹⁸ In instances where the packing has not been properly done it is common to see (mainly in haemophiliacs) large haematomas on the floor of the mouth following a lower molar extraction. This condition may endanger the patient's life and a tracheotomy may be required.

For a single or multi-rooted tooth, absorbable haemostatic gauze previously saturated with thrombin- NaHCO_3 solution is placed in the deepest recess or the socket packed until it reaches the gingival crest (Figure 2). In case of multiple extractions, each tooth socket is packed individually with absorbable haemostatic gauze saturated in thrombin- NaHCO_3 solution (Figure 2 c,d).

Postoperative haemorrhage may occur even though all possible precautions are taken to prevent it. In patients with blood dyscrasias, postoperative haemorrhage should always be expected, even following a simple and carefully done dental extraction. The control of postoperative bleeding should be effected as soon as possible. The longer it is delayed, the more difficult it will be to achieve haemostasis. It seems that after prolonged bleeding the blood vessel loses muscle tone and bleeding is favoured. In the management of any postoperative haemorrhage, it is important to localize the exact bleeding site and to ensure that no

foreign body, such as a broken piece of tooth, bone spicules, sharp bone margins, or torn soft tissue, remains in the surgical area. The same criteria apply to the management of postoperative bleeding in the normal patient.

The idea of protecting the loose clot, especially in patients with blood diseases, is to be discouraged since the added packing will never reach the source of bleeding and bleeding will continue beneath the cloth.

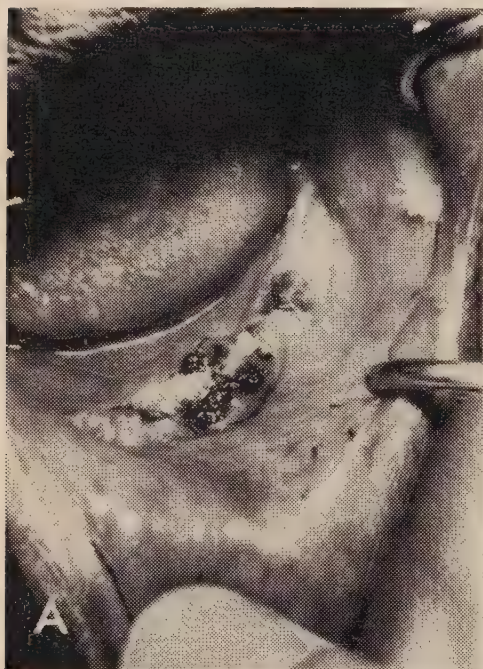
DISCUSSION

Dental extractions are not infrequently complicated by severe haemorrhage

occurring during the operation or thereafter. Knowledge of the factors that participate in haemostasis and understanding of the mechanism of haemostasis are therefore indispensable to haemorrhage control.

Knowing the proper haemostatic material to use in the treatment of haemorrhage is also very important, but it is equally important to know how to use these materials. Oxidized regenerated cellulose saturated in thrombin- NaHCO_3 solution is an effective agent in effecting local haemostasis. With this combination of agents, properly applied, haemostasis was achieved following the removal of teeth in a large number of haemophiliacs and patients with thrombocytopenia.¹⁷⁻¹⁹

FIGURE 2 A, Postoperative site following removal of cuspid, bicuspid and second molar in a thrombocytopenic patient with a platelet count of 83,000. Socket was packed with Oxycel. B, Same patient as in A following removal of the third molar. Platelet count 16,000. Socket packed with Surgicel. C, Postoperative view following removal of five teeth in a patient with severe haemophilia. B. Socket packed with Surgicel. D, Postoperative view following removal of four teeth in a patient with mild haemophilia. A. Socket packed with Oxycel.



However, it should be emphasized that in the management of these types of patients local haemostatic agents are of value only when other factors that relate to the haemorrhagic tendency are taken into consideration. These factors are:

1. Complete dental and medical evaluation by the dentist and haematologist before any surgical procedures are undertaken;

2. Establishment of good rapport between the patient and the dentist by reassurance and explanation to minimize emotional trauma involved;

3. Control of local infection and inflammation with imposed oral hygiene to hasten postoperative healing; and

4. Avoidance of excessive trauma to the soft tissues or sockets during the operation.

All these precautions, when carefully observed, contribute to a non-haemorrhagic dental extraction in patients with or without blood diseases. Following the procedure outlined herein, haemostasis has been successfully effected even in patients with a severe defect of the haemostatic mechanism undergoing multiple extractions (Figure 2).

SUMMARY

The factors participating in the complex mechanism of haemostasis and the haemostatic action of absorbable regenerated oxidized cellulose are discussed.

The use of oxidized regenerated cellulose saturated with thrombin- NaHCO_3 solution in preventing and treating haemorrhage in normal patients and those affected by blood diseases is described. Other factors that complicate the bleeding tendency in haemorrhagic patients are also explained.

1. Tocantins, L. M. The mechanism of hemostasis. *Ann. of Surg.* 125:292, 1947.
2. Stefanini, Mario and Damashek, William. The hemorrhagic disorders, a clinical and therapeutic approach. New York and London, Grune and Stratton, 1955.
3. Zucker, Marjorie B. Platelet agglutination and vasoconstriction as factors in spontaneous hemostasis in normal thrombocytopenic heparinized and hypoprothrombinemic rats. *Amer. J. of Physiology* 148:275, 1947.

4. MacFarlane, R. G. Critical review: mechanism of haemostasis. *Quart. J. Med.* 10:1, 1941.
5. Stefanini, Mario. Basic mechanisms of hemostasis. *Bull. New York Acad. Med.* 30:239, 1954.
6. Zucker, Marjorie B. Mechanism of release of vasoconstrictor substance from platelets (presumably 5-hydroxytryptamine) during clotting. *Abst. Montreal 19 Internat. Physiol. Congress*, 915, 1953.
7. Biggs, Rosemary and MacFarlane, R. G. Human blood coagulation and its disorders. Ed. 3. Oxford. Blackwell Scientific Publications, 1962.
8. Quick, A. J. Physiology and pathology of hemostasis. Philadelphia, Lea & Febiger, 1951.
9. Lucas, O. N. Las pruebas de laboratorio relacionadas con los tres elementos figurados de la sangre. (Laboratory tests involving red cell, white cell and platelets.) *Rev. Circ. Argent. Odont.* 26:81, 1962.
10. Idem. Pruebas de laboratorio para la evaluación del mecanismo de la coagulación de la sangre. (Laboratory test for the evaluation of the coagulation mechanism.) *Rev. Asoc. Odont. Argent.* 50:102, 1962.
11. Lucas, O. N., Finkleman, A. and Tocantins, L. M. Management of tooth extractions in hemophiliacs by the combined use of hypnotic suggestion, protective splints and packing of sockets. *J. Oral Surg., Anes. & Hosp. D. Serv.* 20:488, 1962.
12. Tocantins, L. M. Useful local and general hemostatics in management of abnormal bleeding. *Univ. Delaware State Medical Journal* 22:265, 1950.
13. Idem. Fundamental working concepts in the study and management of patients with abnormal bleeding. *Amer. Practitioner* 3:479, 1948.
14. Georgiade, N. G., Mitchell, T., Lemler, J. and Heid, J. Use of a new improved hemostatic sponge in oral surgery. *J. Oral Surg., Anes. & Hosp. D. Serv.* 19:215, 1961.
15. Linn, B. F. Use of a new sublingual hemostat in dental practice. *D. Digest* 66:508, 1960.
16. Lucas, O. N., Carroll, R. T., Finkleman, A. and Tocantins, L. M. Tooth extractions in hemophilia. Control of bleeding without use of blood, plasma or plasma fractions. *Thrombosis et Diathesis Hemorrhagica* 8:208, 1962.
17. Lucas, O. N., Young, K., Finkleman, A. and Tocantins, L. M. Oral surgery in thrombocytopenic patients. *Oral Surg., Oral Med. & Oral Path.* 17:572, 1964.
18. Lucas, O. N. and Tocantins, L. M. Management of dental extractions in hemophilia A and B. *Intl. Conference on "The hemophilia."* K. Brinkhaus, ed. Chapel Hill N.C., Univ. of Carolina Press, p. 339, 1964.
19. Idem. Problems in hemostasis in hemophilic patient undergoing dental extractions. *Annals of N. Y. Acad. of Sciences* 115:art.1, 470, 1964.
20. Lucas, O. N. and Wagner, N. Reevaluation of oxidized regenerated cellulose and its use in combination with thrombin (in preparation).
21. Perkins, R. E. L. Clinical investigation of adrenochrome monosemicarbazone sodium salicylate. *Oral Surg., Oral Med. & Oral Path.* 10:230, 1957.
22. Putman, T. J. The use of thrombin on soluble cellulose in neurosurgery. A clinical application. *Ann. of Surg.* 118:127, 1943.
23. Scopp, I. W., Fredrics, Harry and Anderson, J. D. Evaluation of carboxymethyl cellulose as an absorbable coagulant in oral surgery procedures. *Oral Surg., Oral Med. & Oral Path.* 14:1009, 1961.
24. Tocantins, L. M. and Holburn, R. R. Exercise 3: Effect of pH on clotting time of nonactivated plasma. Exercise 4: Effect of change in pH on the clotting time of activated plasma. In: *Blood coagulation, hemorrhage and thrombosis.* L. M. Tocantins and L. Kazal, ed. New York, Greene and Stratton, 1964.
25. Seegers, E. and Doub, L. Oxidized cellulose and thrombin. *Soc. of Experimental Biol. and Med. Proceedings* 56:72, 1944.
26. Spouge, J. D. Hemostasis in dentistry, with special reference to hemocoagulation. II, Principles underlying clinical hemostatic practices in normal patients. *Oral Surg., Oral Med. & Oral Path.* 18:583, 1964.

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Incidence of congenital anomalies in permanent teeth of a group of Canadian children aged 6-9

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Radiographic examination of 457 6-9 year old Edmonton children revealed that 4.1 per cent had missing teeth, 3.1 per cent had supernumerary teeth and 0.2 per cent had fused teeth. Supernumerary teeth occurred more frequently in boys than in girls. Congenital absence of maxillary lateral incisors and mandibular second bicuspid tended to occur bilaterally. The authors conclude that posterior bitewing radiographs are inadequate for formulating a diagnosis and treatment plan for the child in the mixed dentition stage.

L'examen radiologique de 457 enfants d'Edmonton âgés de 6 à 9 ans, a révélé des dents manquantes chez 4.1 pour cent d'entre eux, des dents surnuméraires chez 3.1 pour cent, et la fusion de deux dents chez 0.2 pour cent. Les dents surnuméraires étaient plus fréquentes parmi les garçons que parmi les filles. L'absence congénitale des incisives latérales supérieures, et des secondes prémolaires du bas, était aussi fréquente dans les deux groupes. Les auteurs croient que des radiographies interproximales sont insuffisantes pour établir un diagnostic et un plan de traitement chez les enfants au cours de la période de dentition mixte.

The congenital dental anomalies which most frequently occur in children are missing teeth, supernumerary teeth, fused teeth and peg teeth.¹⁻⁸ These anomalies can be defined as follows:

Congenitally missing teeth implies the congenital absence of a tooth or a tooth

germ which may occur in either the permanent or the deciduous dentition. The term 'hypodontia' is also used.

Supernumerary tooth implies the occurrence of a tooth in excess of those

TABLE 1 Per cent incidence of permanent tooth anomalies.

Investigator	No. examined	Radiographs taken	Age range	Missing teeth %	Supernum- erary teeth %	Fused teeth %	Peg teeth %
Dolder ¹ (Switzerland)	10,000	Yes	6-15	3.4	0.6		
Pedersen ² (East Greenland Eskimo)	603	Yes	7-	3.0*			
(Angmagssalik Eskimo)	130	Yes	7-		2.3		
Grahnen ³ (Sweden)	1,006	Yes	11-14	6.1*			1.7
Saarenmaa ⁴ (Finland)	5,003	No	6-18	=0.2†			
Clayton ⁵ (U.S.A.)	1,688	Yes	6-11	7.1*	2.7	=0.2	=0.5
Lind ⁶ (Sweden)	1,717	Yes	‡	7.4	3.6		

*Exclusive of third molars.
†Refers only to erupted supernumerary teeth.
‡School children in an orthodontic practice.

TABLE 2 Per cent incidence of deciduous tooth anomalies.

Investigator	No. examined	Radiographs taken	Age range	Missing teeth %	Supernum- erary teeth %	Fused teeth %	Peg teeth %
Menczer ⁷ (U.S.A.)	2,209	Yes	2-6	0.09	0.23	0.14	
Grahnen and Granath ⁸ (Sweden)	1,173	Yes	3-5	0.4	0.3	0.5	

teeth normally found in the human dentition.

Fused teeth implies an abnormality in which there is a structural union of two or more normally separate tooth germs.

Peg tooth implies a tooth in which the axial crown surfaces converge or taper toward the incisal edge to form a peg-shaped or cone-shaped crown.

Some of the studies which have been previously reported on the incidence of congenital dental anomalies in children are summarized in Tables 1 and 2. Two aspects of these reports interested us. The first is the much lower incidence of congenital dental anomalies in the deciduous dentition compared to the permanent dentition, a fact which has been pointed out previously by Grahnen.⁸ The second is the work of Pedersen² who, from his studies of the East Greenland Eskimo and his extensive review of the literature, could find no evidence to support the

view that evolution is responsible for the wide differences in the incidence of congenitally missing third molars in modern racial groups. The reader is referred to Pedersen's work and that of Grahnen for extensive literature reviews on the subject of congenital dental anomalies.

To date no detailed study of the incidence of congenital dental anomalies in Canadian children has been reported. The present study was designed to provide such information.

METHOD

A group of 457 well children ranging in age from 6-9 years inclusive was selected for the study. Sufficient numbers were selected to permit equal age sample distribution. Three hundred and seventy-nine of the children attended the Paedodontic Department, University of Alberta,

TABLE 3 Radiographic technique.*

Area	Angle of cone
Maxillary incisor	+50°
Maxillary molar	+35°
Mandibular incisor	-25°
Mandibular molar	0°
Bitewing (molar)	+10°

*Patient's eyes and occlusal plane parallel to floor.

for routine dental care. Seventy-eight cases were obtained from the records of private practitioners in Edmonton. Patients specifically referred for the treatment of dental anomalies were not included in the study.

The radiographic technique in all cases was as follows: The child's head was positioned so that the eyes were parallel to the floor. The occlusal plane of the maxilla was parallel to the floor for maxillary views and the occlusal plane of the mandible was parallel to the floor for mandibular views. The apical films were placed so that approximately one-quarter

of an inch of the film projected beyond the biting surface of the teeth being radiographed. Eight radiographs were taken. Additional details of the radiographic procedure are seen in Table 3. No cuspid views were taken because anomalies in the cuspid area were rarely found in previous studies^{3,5} and because the films for the molar areas were positioned to include the cuspid area. Permanent second molar views were not taken. Kodak DF-57 large ultra speed periapical films (1¼ x 1½ inches) were used for all views. This type of radiographic survey is used routinely for mixed dentition cases in the paedodontic section of the Department of Dentistry for Children at the University of Alberta.

FINDINGS

The permanent tooth anomalies found in this study are reported in Tables 4-7. The age range of the children did not permit an adequate survey of the deciduous dentition.

TABLE 4 Incidence of permanent tooth anomalies.

Age	No. of children	No. with missing teeth	No. with supernumerary teeth	No. with peg teeth	No. with fused teeth
6	109	5	5	0	0
7	124	6	1	0	0
8	109	5	6	0	1
9	115	3	2	0	0
Total	457	19	14	0	1
Incidence		4.1%	3.1%	0%	0.2%

TABLE 5 Sex distribution of permanent tooth anomalies.

Sex	No. of children	Number of children with				Total No. of children exhibiting anomalies
		Missing teeth*	Supernumerary teeth	Fused teeth	Peg teeth	
Male	226	7* (3.1%)	13 (5.7%)	1 (0.4%)	0	21 (9.2%)
Female	231	12 (5.2%)	1 (0.4%)	0	0	13 (5.6%)
Total	457	19 (4.1%)	14 (3.1%)	1 (0.2%)	0	34 (7.4%)

*Includes unusual case.

TABLE 6 Case summary of missing teeth.

Case No.	Age	Sex	Missing teeth
1	6	M	642 2456 54 5
2	6	M	5 5
3	6	F	5 5
4	6	F	5 5
5	6	F	2 2
6	7	F	5 5 5
7	7	M	5
8	7	F	5
9	7	F	2 2
10	7	F	5 5 5
11	7	F	2 2
12	8	M	5
13	8	M	5 5
14	8	M	5
15	8	F	5
16	9	F	5
17	8	F	5 5 5 5
18	9	M	5 5
19	9	F	5 5
Total			44

Congenitally Missing Teeth.—In the 19 children with missing teeth (Table 4), a total of 44 teeth was found to be absent (Table 6) giving an average of 2.3 missing teeth per child. Case 1 in Table 6 is an unusual case that would be rare in a sample of 457 children. For this reason it was not included in Tables 8 and 9 which describe the case distribution of the missing teeth. The most frequently missing tooth was the mandibular second bicuspid.

Excluding the unusual case, bilateral absence was found in 66.6 per cent of the cases. Of the 12 cases involving mandibular second bicuspid, eight were bi-

lateral and four were unilateral; of the six cases involving maxillary second bicuspid, two were bilateral and four were unilateral; and of the three cases involving the maxillary lateral incisors, all three were bilateral. The tendency to bilateral absence (symmetrical hypodontia) supports the findings of Lind⁶ but not those of Grahnen³ or Glenn⁹ both of whom found no greater tendency for bilateral absence.

In the present study missing teeth occurred more frequently in females than in males (12:7), a finding which supports those of Lind⁶ and Glenn.⁹ Grahnen,³ however, found a greater numerical incidence of missing teeth (excluding third molars) in boys than in girls (34:27) for the age group 11-14 but concluded that the difference was not statistically significant.

Supernumerary Teeth.—In the 14 children with supernumerary teeth, a total of 16 supernumerary teeth was found (1.1 per child). Fourteen of the 16 teeth were found in the maxillary incisor region and two in the bicuspid region. Supernumerary teeth occurred more frequently in males than females (13:1).

Fused Teeth and Peg Teeth.—Fused teeth were found in only one child: a permanent mandibular left lateral incisor being fused to a supernumerary incisor. The fusion involved only the crown portions of the two teeth. The same condition occurred in the deciduous dentition in the same patient. No peg teeth were found.

DISCUSSION

In the present study of 457 children, 61 dental anomalies were found consisting of 44 congenitally missing teeth, 16 supernumerary teeth and one case of fused teeth. No peg teeth were found. Although the findings in this study resemble somewhat the findings in other studies (Table 1), reliable comparisons cannot be made because the age ranges are different and because the details of individual age distribution were not included in the previ-

TABLE 7 Case summary of supernumerary teeth.

Case No.	Age	Sex	Supernumerary teeth*
1	6	M	$\begin{array}{c} \downarrow \\ 32 \end{array} 1 \mid 123$
2	6	M	$321 \mid 1 \begin{array}{c} \downarrow \\ 23 \end{array}$
3	6	M	$321 \mid 1 \begin{array}{c} \downarrow \\ 23 \end{array}$
4	6	M	$321 \mid \begin{array}{c} \uparrow \\ 123 \end{array}$
5	6	F	$321 \mid \begin{array}{c} \uparrow \\ 123 \end{array}$
6	7	M	$321 \mid 1 \begin{array}{c} \downarrow \\ 23 \end{array}$
7	8	M	$\begin{array}{c} \downarrow \\ 321 \end{array} \mid 123$
8	8	M	$321 \mid \begin{array}{c} \downarrow \\ 123 \end{array}$
9	8	M	$321 \mid \begin{array}{c} \uparrow \\ 123 \end{array}$
10	8	M	$\begin{array}{c} \downarrow \\ 32 \end{array} 1 \mid \begin{array}{c} \downarrow \\ 123 \end{array}$
11	8	M	$321 \mid 12 \begin{array}{c} \downarrow \\ 3 \end{array}$
12	8	M	$321 \mid \begin{array}{c} \downarrow \\ 123 \end{array}$
13	9	M	$\begin{array}{c} \uparrow \\ 5 \end{array} 4321 \mid 1234 \begin{array}{c} \uparrow \\ 5 \end{array}$
14	9	M	$321 \mid \begin{array}{c} \downarrow \\ 123 \end{array}$
Total			16

*Arrow indicates the direction of the crown of the supernumerary tooth and the position of the tooth in relation to adjacent teeth in the arch.

ous reports. Comparison of the incidence of one of the anomalous conditions, missing teeth, might be made between our study and that of Glenn⁹ which also included details of age distribution. Glenn found a 7.6 per cent incidence of missing teeth in 327 children in the age range 6-9 but these children were seen in a private paedodontic practice.

All but one of the 61 anomalous conditions were found in the maxillary incisor region or in the bicuspid region. The fact that 21 of the anomalies occurred in the maxillary incisor region proves that it is not possible to make a correct diagnosis consistently nor to plan a complete treatment program for a child in the mixed dentition stage when only posterior bite-

wing radiographs are taken. Previously one of us (C.R.C.)¹⁰ suggested that a minimal radiographic survey for the mixed dentition period should comprise bitewing radiographs of the posterior teeth plus an apical radiograph of the maxillary incisor area. This recommendation was based on the assumption that it is possible to obtain consistently high quality radiographs for all mixed dentition patients. Further study is needed to determine the adequacy of such a minimum survey for the detection of congenital dental anomalies.

Additional information on the incidence of congenital dental anomalies in other groups of Canadian children would be a valuable addition to present knowledge.

TABLE 8 Distribution of congenitally missing teeth.*

No. of missing teeth	Anatomical location	Total
1 tooth	$\overline{5} \mid \overline{5} \mid \overline{5} \mid$ $\overline{5} \mid \overline{5} \mid \overline{5} \mid$	6
2 teeth	$\overline{5} \mid \overline{5} \mid \overline{5} \mid \overline{5} \mid \overline{5} \mid \overline{5} \mid \overline{5} \mid \overline{5} \mid \overline{5} \mid \overline{5} \mid$ $\overline{2} \mid \overline{2} \mid \overline{2} \mid \overline{2} \mid \overline{2} \mid \overline{2} \mid$	9
3 teeth	$\overline{5} \mid \overline{5} \mid \overline{5} \mid$ $\overline{5} \mid \overline{5} \mid \overline{5} \mid$	2
4 teeth	$\overline{5} \mid \overline{5} \mid$ $\overline{5} \mid \overline{5} \mid$	1
Total		18

*Less unusual case No. 1.

particularly if the numbers under study were increased. Perhaps of even greater value would be a study of the incidence of congenital dental anomalies in French-Canadian children.

SUMMARY AND CONCLUSION

Dental radiographs were taken of 457 children in the age range of 6-9 years (inclusive) in Edmonton, Alberta, to determine the incidence of congenital dental anomalies of the permanent teeth. Findings were as follows:

- 1. Congenital dental anomalies were found in 7.4 per cent of the cases.
- 2. Missing teeth were found in 4.1 per cent of the children, supernumerary teeth occurred in 3.1 per cent of the children and fused teeth were evident in 0.2 per cent of the children. No peg teeth were found.

TABLE 9 Case distribution of congenitally missing teeth.*

No. of missing teeth	No. of cases	Total no. of missing teeth
1	6	6
2	9	18
3	2	6
4	1	4
Total	18	34

*Less unusual case No. 1.

4. Supernumerary teeth were found more frequently in males than in females.

5. Missing teeth occurred more frequently in females.

6. Congenital absence of maxillary lateral incisors and mandibular second bicuspid s tended to occur bilaterally.

7. No child exhibited more than one type of dental anomaly.

8. A radiographic survey which consists only of posterior bitewing radiographs is inadequate to demonstrate a high proportion of congenital dental anomalies in the early mixed dentition.

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- 1. Dolder, E. Deficient dentition. *D. Record* 57:142, 1937.
- 2. Pedersen, P. O. The East Greenland Eskimo dentition. Copenhagen, C. A. Reitzels, 1949.
- 3. Grahnen, Hans. Hypodontia in the permanent dentition. *Odontologisk Revy* 7:419 Suppl. 3 (Thesis) 1956.
- 4. Saarenmaa, L. Origin of supernumerary teeth. *Acta Odont. Scandinavica* 9:293, 1951.
- 5. Clayton, J. M. Congenital dental anomalies occurring in 3,557 children. *J. Den. Children* 23:206, 4th quart. 1956.
- 6. Lind, Volmer. Medfodda antalsvariationer i permanenta dentitionen. *Odontologisk Revy* 10:176, 1959.
- 7. Menczer, L. F. Anomalies of the primary dentition. *J. Den. Children* 22:57, 1st quart. 1955.
- 8. Grahnen, Hans and Granath, Lars. Numerical variations in primary dentition and their correlation with the permanent dentition. *Odontologisk Revy* 12:348, 1961.
- 9. Glenn, F. B. Incidence of congenitally missing permanent teeth in a private pedodontic practice. *J. Den. Children* 28:317, 4th quart. 1961.
- 10. Castaldi, C. R. Management of some common paedodontic problems. *J. Canad. D.A.* 28:80, 1962.

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Idiopathic open bite

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Idiopathic open bite resembles in a number of clinical features open bite preceded by bulbar poliomyelitis. There are further differences which delineate idiopathic open bite from open bite due to habit. This has led to the formulation of a syndrome which seems to characterize idiopathic open bite: abnormal swallowing and tongue thrust, weakness of the oro-facial complex, facial asymmetry, low hyoid resting position, increased hyoid displacement during function, and lordotic cervical column. Recent animal experiments support the conclusions, based on the clinical observations described in this paper, that viruses may indeed be responsible for head and neck deformities. Particularly significant is the fact that induced viral infections have actually produced open bite which bears a strong resemblance to the human variety.

■
L'occlusion béante d'origine idiopathique présente de nombreux caractères cliniques, analogues à

ceux de l'occlusion béante qui résulte d'une poliomyélite bulbaire. L'occlusion béante d'origine idiopathique se différencie aussi de celle qui résulte d'habitudes. On a donc pu décrire ainsi le syndrome caractéristique de l'occlusion béante idiopathique: réflexe de déglutition anormale accompagnée de poussée antérieure de la langue, faiblesse du complexe musculaire oro-facial, asymétrie faciale, abaissement de la position de repos de l'os hyoïde, augmentation de la trajectoire fonctionnelle de l'os hyoïde, et colonne cervicale lordotique. Des expériences récentes faites sur des animaux de laboratoire semblent confirmer les conclusions auxquelles en est venu l'auteur à la suite d'observations cliniques, à savoir que certains virus seraient capables de causer des déformités de la tête et du cou. Il est spécialement intéressant de noter qu'au moyen de virus, on a produit sur des animaux de laboratoire des occlusions béantes qui ressemblent beaucoup à celles que l'on rencontre chez les humains.

The literature reveals that open bite has long been a controversial subject. There is little agreement about the definition or classification of open bite. Concerning the aetiology, there are very few diseases or circumstances which have not been cited as possible antecedents for this phenomenon. With respect to treatment and prognosis, opinions range from "no problem" to "the most disheartening and

difficult to deal with in dentistry."¹⁻¹¹

Various definitions were extracted from the literature and combined in such a way as to arrive at 'workable' descriptions and differentiations between open bites of accepted causes and those of idiopathic origin.^{1,2,8,9,12-16} These descriptions were drawn to lay a foundation for developing a differential diagnosis. The following outline resulted:

Open bite is a form of malocclusion where a vertical opening remains between the dental arches in the incisor or bicuspid region when the molar teeth are brought into occlusal contact.

There are two major types of open bite: Type I—causes (local or systemic) generally accepted, and Type II—idiopathic origin.

In Type I open bite due to local causes the size of the opening is usually that of an object habitually interposed. The teeth may have short clinical crowns; they may be separated; they may fan out, resulting in elongated clinical crowns; or they may be in linguo-version. The gingiva is often inflamed. The alveolar process is either of normal height or shortened, but its width is sometimes increased in the open bite zone. Usually there are no speech problems and no facial asymmetries associated with this type of open bite. The tongue seems in normal intra-oral position. The malocclusion is found most often between the ages of 3-8. Orthodontic treatment is usually successful. This open bite is often self-correcting.

A number of systemic diseases may also lead to Type I open bite. The teeth may be affected as to size, shape, position, number, and quality, depending upon the nature of the disease. The bones, muscles, nerves, or skin may also be affected. The disease is often progressive, occurring at special ages, and affecting clinically various other parts of the patient's body. Since this is primarily a medical problem, orthodontic treatment is usually secondary and often of limited success.

In Type II idiopathic open bite the opening appears wedge-shaped, beginning at the first molars or second bicuspid, and reaching its greatest separation in the incisor region. The clinical crowns correspond to the anatomical crowns of the teeth. There is no spacing and no tilting. There are no dental anomalies. The gingiva is usually normal. There is often a high palate with compressed dental arches. The alveolar process is normal in the posterior segment, but its vertical height increases progressively toward the open bite zone in the mandible. As a rule there are some speech defects, ranging from very slight to severe. This type of

open bite makes its earliest appearance between the ages of 7-14. The condition may increase in severity up to the age of 19-20, sometimes despite attempted treatment. The tongue takes a very low infra-occlusal position when at rest. The patient seems generally well and free of any other progressive disorder.

STUDY DESIGN

Diseases and conditions actually or potentially related to open bite were grouped into three categories. Type I open bite due to generally accepted causes, Type I open bite due to other possible antecedents, and Type II idiopathic open bite with speculative antecedents (Tables 1-3).

Only the speculative antecedents enumerated in Table 3 were considered for further investigation. Enteric virus diseases constitute the leading aetiological suspects because they produce more of the symptoms associated with idiopathic open bite than any of the other diseases or conditions.

Critical review of the literature on poliomyelitis¹⁷⁻²⁰ revealed some striking facts, although the number of case reports dealing with residual damage to the jaw has been rather small.^{18,20,21-37} Among the post-poliomyelitic disabilities were listed bilateral and unilateral jaw muscle paralysis with extensive atrophy affecting the patients' appearance, jaw movement, and ability to masticate. Swallowing and speech difficulties accompanied by tongue thrust were also reported.^{20,21,24,38-40} Increasing use of facial muscles was noted during swallowing, accompanied by neck extensions.^{24,25,41} A significant number of patients revealed contracture limitations of muscles suspending the hyoid and upper pharynx, as well as cervical lordosis,^{24,25,41} and a lowered tongue position with marked weakness of the muscles suspending the mandible.²⁵ Speech problems were traced to soft palate paralysis and deficiency of lingual articulation related to inferior displacement of the tongue and tongue muscle impairment.³⁸ In one case of severe open bite which followed poliomyelitis, the significant observation was made that the perverse pattern

TABLE 1 Generally accepted causes of Type I open bite.

Causes	Examples
Local factors and abnormal habits	Ankylosis of teeth Anomalies in number of teeth Premature tooth loss Finger, lip, tongue habits
Abnormal swallowing and tongue thrust	
Nutritional disorders	Rickets
Growth and developmental disorders	Hypothyroidism Hypoparathyroidism Rheumatoid arthritis
Abnormal bone and muscle function	
Effects of function on bone morphology	
Myopathies	Muscular dystrophy

Table 2 Other possible causes of Type I open bite.

Causes	Examples
Prenatal	Intra-uterine factors
Hereditary and congenital	Syphilis, cerebral palsy, Pierre Robin syndrome, craniosynostosis, cherubism, torticollis, cleidocranial and cleidofacial dysostosis
Postnatal	Birth injury
Mouth breathing	
Growth and developmental disorders	Progeria, hyperpituitarism, hyperparathyroidism, acromegaly
Bone lesions	Paget's disease, osteoporosis, Sickle cell anaemia, Cooley's anaemia, Albright's syndrome
Myopathies	Myotonia atrophica, myasthenia gravis
CNS disorders	Multiple sclerosis
Neuromuscular disorders	Bell's palsy, herpes zoster, poliomyelitis

TABLE 3 Speculative antecedents of Type II idiopathic open bite.

Rickets in a subclinical state
Acromegaly which commences before age 20
Hormonal disorders
Localized osteoporotic disorders. (Bony superstructure too weak to support normal activities, e.g. rickets)
Enteric virus diseases

of muscle contraction in addition to a synkinetic tongue thrust were the obvious antecedents to this malocclusion.^{20,35}

The other enteric viruses have not yet been explored as extensively as the poliomyelitis viruses. However, the clinical symptoms and seasonal incidence of Cox-sackie virus infections resemble in many ways the polio virus infections and are often confused with the latter.^{24,25,42-44} The ECHO viruses are also difficult to differentiate clinically from the other enteric viruses, particularly in the milder cases.⁴⁵⁻⁴⁷ There has been evidence that

ECHO and polio viruses occur as mixed infections during epidemics.^{45,48-51} Clinical symptoms of ECHO virus infection are often preceded by skin rashes, including the oral mucosa.^{45,46} At present ECHO viruses seem potentially more serious than the Cox-sackie group, since there are more case reports of paralysis and death. Of particular significance to this study is the fact that many ECHO infections leave residual weakness in the head and neck region, and in one of the cases reported, the tongue and jaws were affected.^{47,52} Other evidence which favours ECHO over

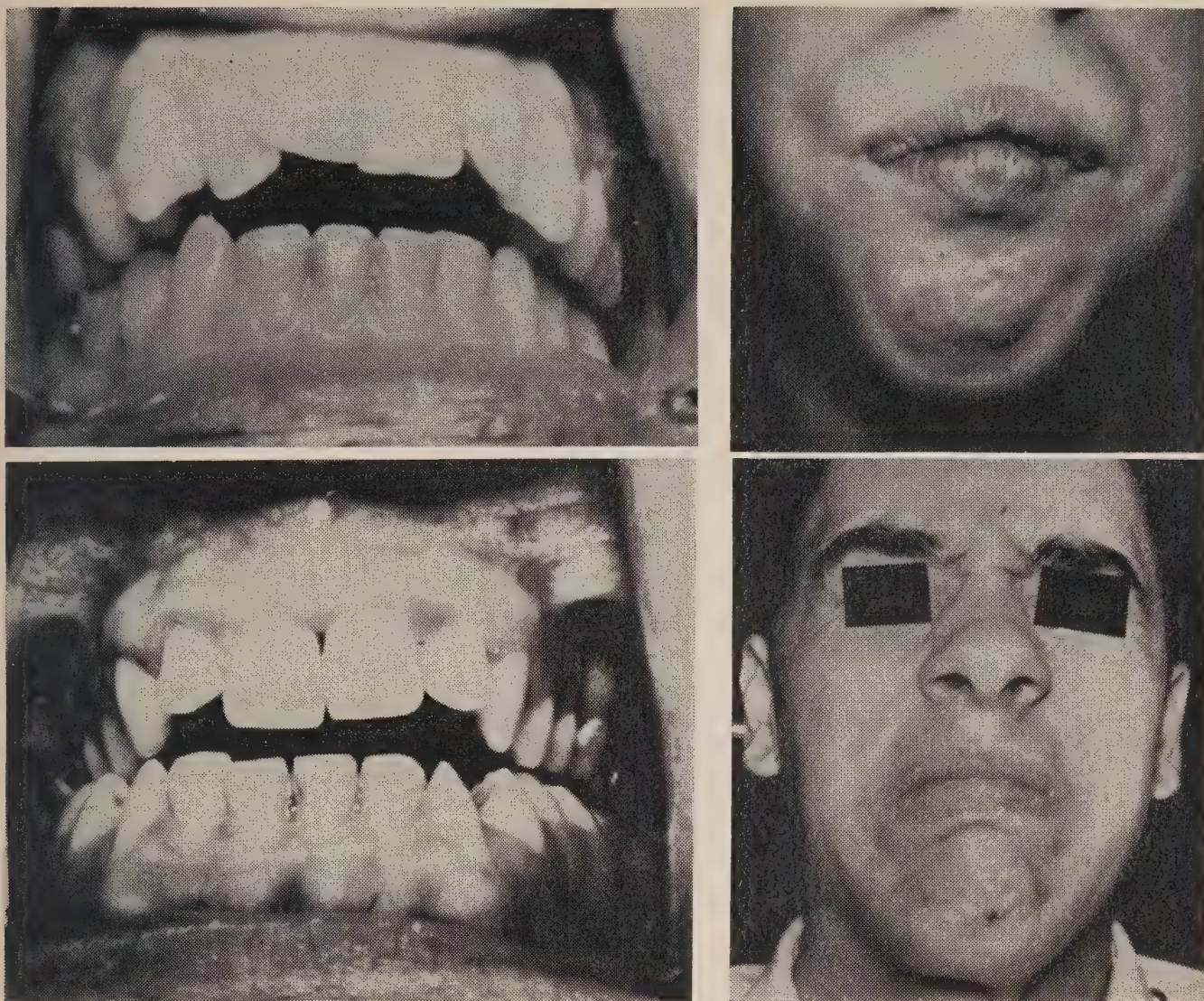


FIGURE 1 Idiopathic open bite with mimic participation during deglutition. These two patients were not aware of their facial contortions when photographed during the act of swallowing their saliva. Both had bilateral weakness of jaw muscles and speech defects in addition to idiopathic open bite. Note prominence of mentalis muscle.

Coxsackie at present as casual antecedents in idiopathic open bite is age incidence, skeletal abnormalities, and lordosis.^{53,54}

MATERIAL AND METHOD

The subjects for this study comprised these groups: patients with a confirmed history of bulbar poliomyelitis, patients with cerebral palsy (included in this investigation because of the controversy over the incidence of open bite among them⁵⁵), an experimental group with idiopathic open bite, and a control group considered normal for purposes of this study.

In addition to certain uniform clinical procedures, experiments were conducted with a gnathodynamometer and with cephalometric radiographs in order to provide two objective methods by which to

assess certain motor disabilities of the trigeminal nerve.

The clinical findings were analysed and are summarized in Table 4 (see also Figure 1).

Tests with the gnathodynamometer (Table 5) revealed a similarity between normal subjects, the cerebral palsy patients, as well as those with open bite due to thumbsucking. All of them gave normal readings of biting force. In contrast, the bulbar polio patients and patients with idiopathic open bite resembled each other, falling well below the normal range of biting force. Biting force was measured in terms of factors on a scale from I to X, rather than actual pounds of pressure. Factor I represented a complete lack of muscle strength and factor X the maximum attained by the strongest subjects.

According to the literature, the hyoid plays an important role in swallowing and speech, and a definite relationship exists between the hyoid and the mandible.^{14,18,23-25,41,56-72} Since some of the suprahyoid muscles are also supplied by the trigeminal nerve, it was decided to observe the functions of the hyoid bone by means of cephalometric radiographs. This was to aid in differentiating open bites due to habits from those with neuromuscular and viral aetiology.

Lateral cephalographs were secured of normal subjects, post-polio patients, and patients with open bites: (1) with the teeth in occlusion, and (2) with the jaws opened to a standardized distance. The results with this method gave measurable evidence that the hyoid behaved in an erratic manner, not only in patients with

idiopathic open bite, but also in those with bulbar polio as antecedent. In addition, the cervical column appeared lordotic in most idiopathic open bite cases as well as in many bulbar polio patients. In open bites with a history of a habit and in the normal control group, the hyoid remained fixed and was located at higher resting levels than in the experimental group.

Thus the cephalometric method appears to be a useful tool for gaining indirect evidence of normal and abnormal muscle function in the suprahyoid and mandibular regions (Figures 2-12).

The grid which appears as an overlay on all of the lateral cephalographs in Figures 4-11 resulted from the following procedure:

All radiographs were made with the

TABLE 4 Clinical findings from 543 study participants.

Clinical findings	No. of subjects				
	Normal*	Thumb suckers†	Cerebral palsy	Bulbar poliomyelitis	Idiopathic open bite
	432	9	36	37	29
Open bite	0	9	0	14	29
Facial asymmetry	0	0	3	14	16
Speech problems	0	3	29	23	25
Breathing difficulties	0	0	0	12	0
Swallowing problems	0	2	20	18	29
Mimic muscle participation	0	2	20	18	28‡
Weak tongue	0	0	0	11	8
Weak jaw muscles	0	0	0	20	28‡

*Of 2,254 patients examined, using an approximate ratio of 4:1, 432 were selected as normal for purposes of this study and used as the control group, matching in sex and age in the experimental group.
†Thumbsuckers were included in these findings because these were open bite cases with undisputed aetiology, and were found in addition to the 29 of idiopathic nature.
‡See Figure 1.

Table 5 Gnathodynamometer readings.

Factor	Per cent of subjects			
	Normal	Cerebral palsy	Bulbar poliomyelitis	Idiopathic open bite
I			15	
II			39	18
III			31	18
IV				44
V	2		10	20
VI	7	14		
VII	22	25		
VIII	37	37	5	
IX	26	24		
X	6			

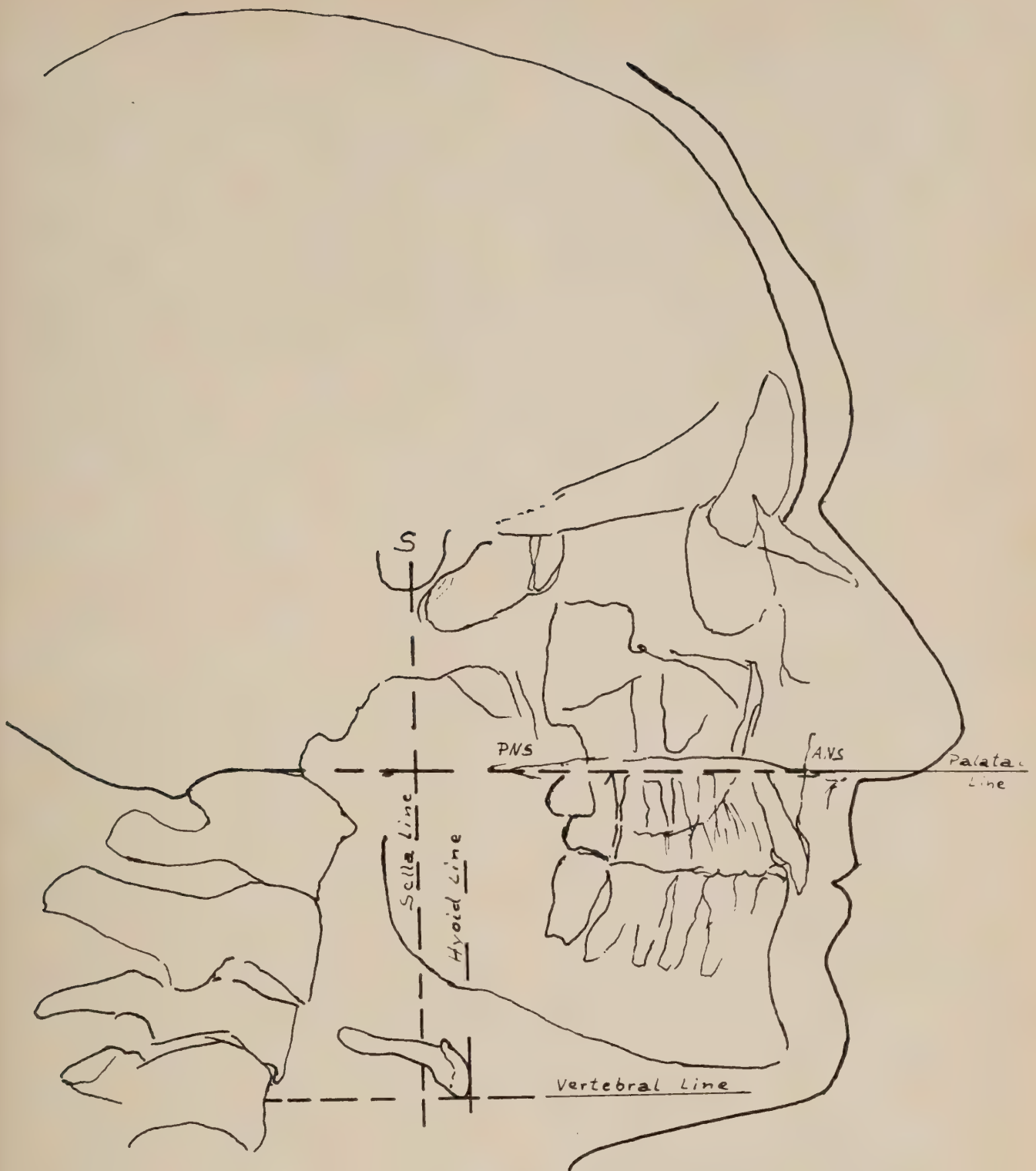


FIGURE 2 Measuring landmarks used in cephalometric study: closed jaw position.

Broadbent-Bolton Cephalometer, with the patient seated comfortably erect and the head secured in a head holder, according to a standardized and generally accepted method advocated by Broadbent (1931). This situates the patient so that his Frankfort horizontal plane (FHP) is parallel to the ground, thus simulating anatomic positioning. Positioning was accomplished by placing the uppermost point on the ear rods (perion) on the

same plane as the orbital point (orbitale), and locking the patient's head in this relationship by using a nasal rest to prohibit rotary movement. By this technique the same position can be re-established at subsequent sittings.

Tracing paper (matte - pad - crafttint) was positioned in the customary way over the headplates, on a viewing box.

The sella turcica was measured in a medio-distal direction and the midpoint

marked in pencil on the tracing paper (Figure 2).

The anterior (ANS) and posterior nasal spines (PNS) were also marked as above, and the so-called palatal line was drawn between those two points and extended posteriorly by a few inches.

Several other clearly visible fixed bony landmarks in maxillary and orbital regions were pinpointed by pencil on the tracing paper. This facilitated the repositioning of the tracing over the second film of the same patient.

A perpendicular line was erected from the midpoint mark of the sella turcica to the palatal line. This line was continued

on to the bottom edge of the film. It gave a stable base line from which various changes could be measured. This line was named the sella line.

The body of the hyoid bone was always clearly visible in the lateral radiograph and changes could be easily measured from it. The following procedure was adopted to obtain the same points of reference on the hyoid: using the extended sella line as base line and sliding a 90 degree angle along this line until the lowest point of the hyoid body was reached, a perpendicular line was again erected which intersected the sella line and was parallel to the palatal line and tangent to

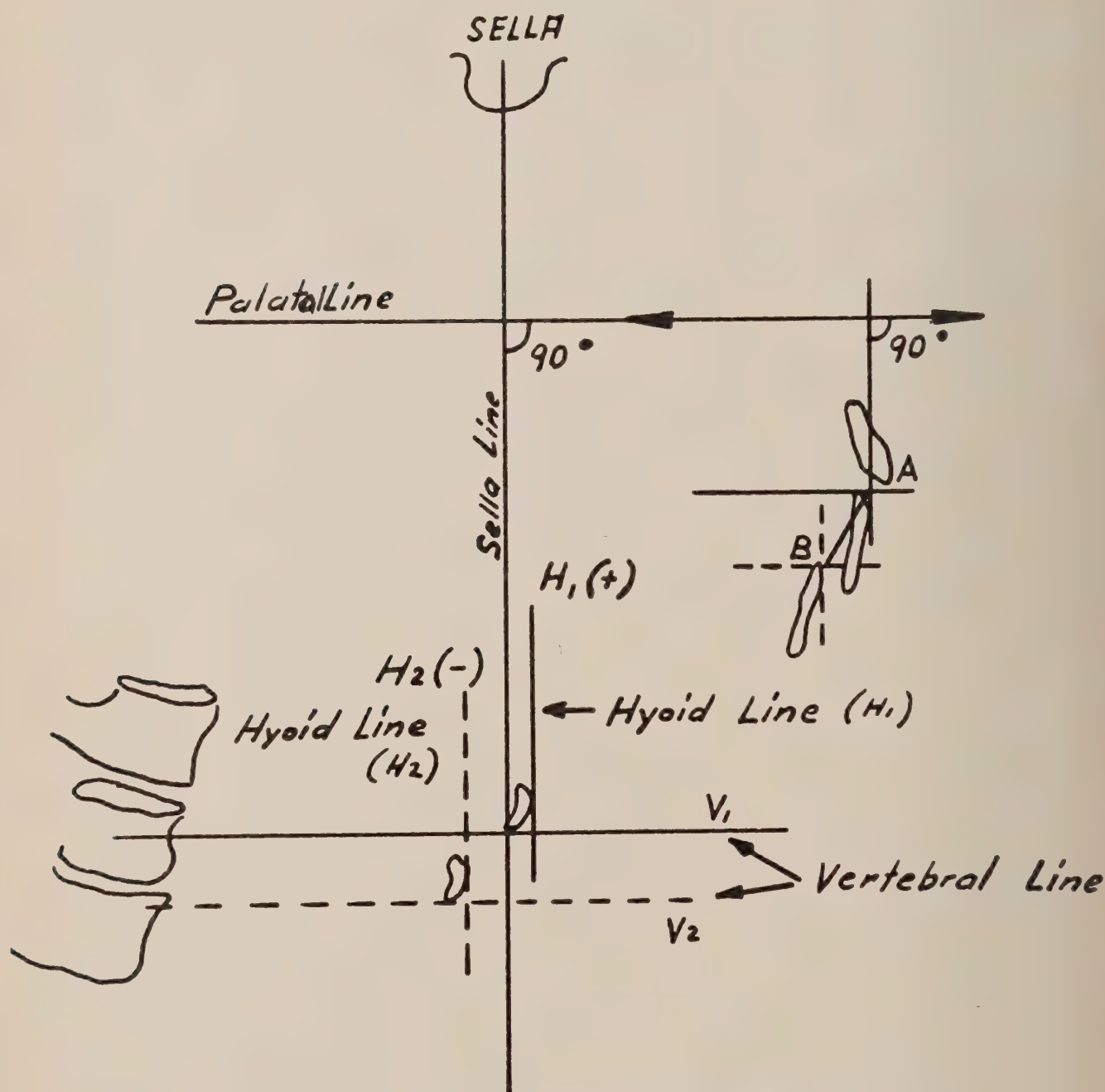


FIGURE 3 Measuring landmarks for closed jaw and open jaw cephalographs.



FIGURE 4 Nineteen year old female with normal occlusion. Cephalograph in closed jaw position shows normal occlusion, normal cervical column, hyoid at high resting level, and mandibular symmetry.



FIGURE 5 Same patient as in Figure 4. Cephalograph in open jaw position shows that hyoid remains fixed and body of the hyoid nearly touches the lower border of mandible.



FIGURE 6 Nineteen year old male with open bite. This patient had bulbar poliomyelitis at age seven. At age eight, his parents first became aware of his open bite. Orthodontic treatment, initiated at age 11, was discontinued at age 13 since no closure could be achieved. Because of a rather pronounced speech defect, orthodontic treatment was subsequently resumed. The second attempt was more successful, as shown in this figure. The cephalograph in closed jaw position shows successful closure of open bite after two years of orthodontic therapy. There is a very slight residual anterior open bite, pronounced asymmetry of the mandibular halves, and slight cervical lordosis.



FIGURE 7 Same patient as in Figure 6. Cephalograph in open jaw position shows 6mm. displacement of hyoid in caudal direction (in contrast to patients with normal bite). The patient had a pronounced speech defect. Gnathodynamometer muscle evaluation results were: left masseter and temporalis readings=III (very weak); right masseter and temporalis readings=V.

the hyoid (Figure 2). This line was extended posteriorly traversing the cervical vertebra and the point of its anterior in-



FIGURE 8 Fourteen year old male with idiopathic open bite. Cephalograph in closed jaw position shows wedge shaped anterior open bite, only the second molars in occlusion, hyoid at low resting level, and pronounced antegonial notch.



FIGURE 9 Same patient as in Figure 8. Cephalograph in open jaw position shows that the extent of jaw movement from closed to open position was 12 mm., and that the hyoid dropped nearly the same vertical distance, 10 mm., and in addition was also displaced dorsally by 7 mm.

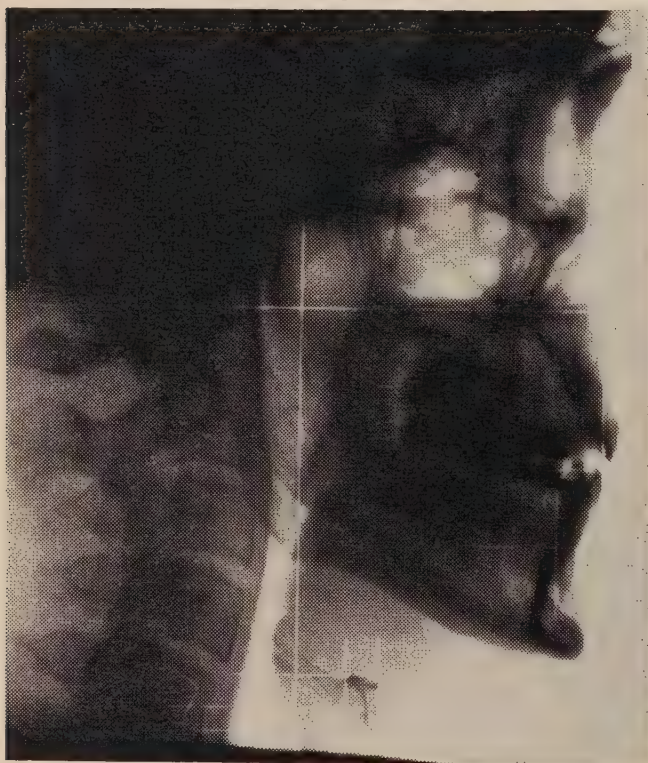


FIGURE 10 Fifty-one year old male with idiopathic open bite. Cephalograph in closed jaw position shows anterior open bite, pronounced asymmetry of the mandibular halves, slight cervical lordosis, and low resting hyoid.



FIGURE 11 Same patient as in Figure 10. Cephalograph in open jaw position shows that the body of the hyoid dropped 8 mm. and moved 7 mm. dorsally.

tersection was marked. This was named the vertebral line. In cases where this line fell between two vertebrae, a point of intersection was established by draw-

ing a straight line connecting the lower anterior edge of the upper vertebra with the upper anterior edge of the lower vertebra. The point of intersection was

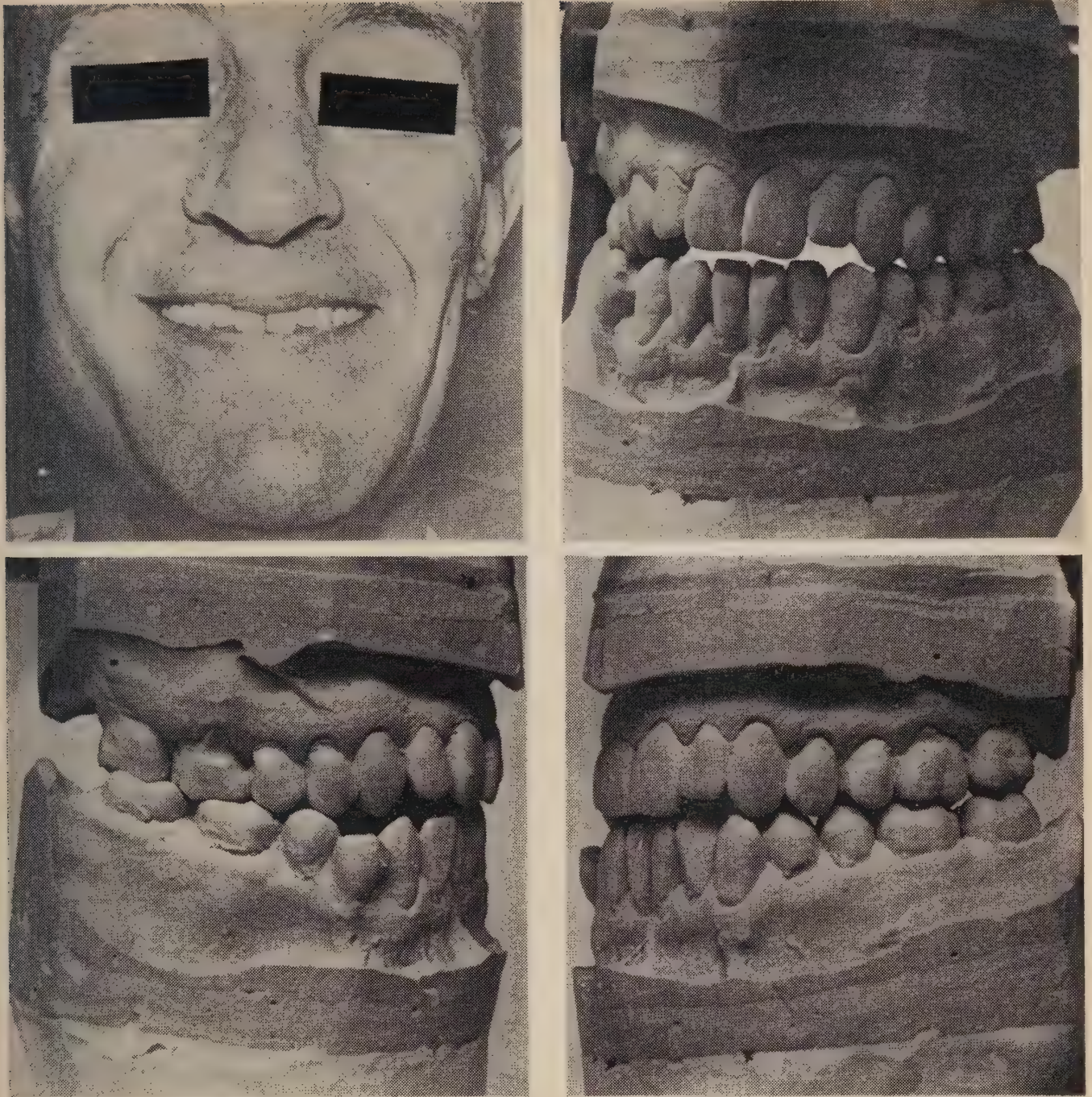


FIGURE 12 Same patient as in Figures 10 and 11. Note hypertrophy of right masseter. The patient was never aware of any muscular imbalance or disability until oral examination disclosed this. Left masseter and temporalis were not palpable. Right masseter was hypertrophied. Gnathodynamometer readings, right=X and left=VII, indicated that the compensatory force of the functioning side was able to supply much of the missing muscle power on the left side. Casts show an anterior open bite which extends to the last molar on the left side and is only wide enough for passage of dental floss. Of special interest is the patient's occupation (physiotherapist), because it illustrates that even a person with this specialized training can be unaware of disabilities of this nature. Lack of awareness may explain why this disability so often remains subclinical.

used to measure the distance of hyoid to vertebra.

The sella and vertebral lines allowed for measuring the position of the hyoid in respect to vertical location from the point of intersection with the palatal line.

One other line had to be drawn in order to measure the distance of the hyoid from the anterior aspect of the cervical spine. This one was parallel to

the sella line, skirting the most anterior surface of the hyoid body. This line was named the hyoid line. Where it intersected with the vertebral line, two points of measurement were gained: (a) the distance from cervical vertebra to hyoid, and (b) the distance from hyoid to sella line.

The tracings and measurements on the second lateral radiograph were performed

the same way. Although head holders and nasal rests were used for all radiographs, test films showed that even under the most rigid controls, the second film of the same skull did not give a perfect duplication. Therefore, to minimize changes in position and factors of fatigue, all lateral views were taken with the least possible delay. The second lateral headplate was taken to explore the behaviour of the hyoid bone when the jaws were apart. In order to achieve measurable inter-incisal opening, a standard tongue blade was inserted with its broad surface vertical between the upper and lower incisors. This gave a known distance between upper and lower incisors. It did not always coincide with the same degree of jaw opening, since patients with a very deep overbite and those with a very wide open bite still would traverse quite different distances, despite the fact that a uniform 19.5 mm. inter-incisal separation was achieved with the tongue blade. The following steps were undertaken to correct this problem and arrive at a more exact measure of the actual jaw separation during the second cephalometric exposure:

1. Patients with edge to edge occlusion needed no correction, since their jaw separation would be almost identical with the 19.5 mm. width of the tongue blade.

2. In cases where open bite, overbite, overjet or Class II relationship existed, a line was erected on the tracing paper perpendicular to the palatal line in such a manner that it skirted the lower incisor on its labial aspect when the teeth were closed. A second line, this one parallel to the palatal line, intersected the first one at the incisal tip.

3. This type of tracing was repeated over the second lateral radiograph, with the jaws held apart with the tongue blade.

4. By connecting both points of intersection (A+B) it became possible to measure the actual distance travelled by the jaw during the second exposure (Figure 3). In normal patients, where no hyoid displacement occurred, the jaw had to travel a much greater distance than 19.5 mm. because of the overbite. This contrasts with idiopathic open bite cases and those following bulbar polio, where the greatest amount of hyoid displacement

occurred. In these subjects, jaws traversed an average of only 11 mm. More details can be found in a recently completed study.⁵⁵

After removing the tracing paper from the first lateral headplate it was now repositioned and secured over the second one with the help of the bony landmarks in general and aided by the spot pencil marks in particular.

The palatal line and the sella line remained the same. If no displacement of the hyoid occurred, new vertebral and hyoid lines were not needed. Therefore all measurements remained the same. But whenever the hyoid moved in cephalocaudal or ventral-dorsal directions (this could be readily seen on the tracings), new vertebral and hyoid lines were traced either with a coloured pencil or by broken lines to differentiate them from the first set of tracings. Changes were measured on the sella and vertebral lines and on the hyoid. Locations to the right of the sella line were designated [+]; locations to the left of the sella line [—] (Figure 3). These two symbols were also used on the first tracing to denote the resting hyoid position either ventral or dorsal to the sella line.

DISCUSSION

One clinical symptom which seems common to both Types I and II open bites is tongue thrust. In one instance it may be the antecedent; in the other it follows the open bite. To date there is no scientific method to prove which comes first — the tongue thrust or the open bite. However, when tongue thrust is accompanied by most of the other symptoms of the idiopathic open bite syndrome (Table 6), I accept it as subsequent to and diagnostically related to the Type II open bite.

Normal individuals experience great

TABLE 6 Syndrome associated with idiopathic open bite*

Abnormal swallowing and tongue thrust
Weakness of oro-facial complex
Facial asymmetry
Low hyoid resting position
Increased hyoid displacement during function
Lordotic cervical column

difficulty when asked to swallow with their lips and jaws apart. They may in time discover a way to cope with this handicap by protruding the tongue between their teeth in order to stabilize the jaw. It is therefore comprehensible that tongue thrust may be the compensatory action to permit deglutition where its normal mechanism has been impaired.

Bosma,^{24,25,41,57} Pruzansky,²⁰ Shelton,⁶⁹ and Van Riper⁷¹ are among the writers who deal with the close inter-relationship of tongue and hyoid in speech articulation and swallowing. Bosma speaks about the 'tongue-hyoid-larynx composite,' which in normal subjects is elevated against the stabile cranium, and a 'fixed mandible' in order to initiate the second phase of adult swallowing. In case of a neuro-muscular disability which interferes with the sequential but very intricate and complex action of deglutition, other intact muscles are called upon to take over or facilitate this function. Besides a peculiar twisting or stretching of the neck, the tongue thrust apparently emerges as the best abortive attempt to elevate the composite of tongue-hyoid-larynx in the initiating phase of swallowing.

Several cases were selected from this study to illustrate typical cephalometric findings (Table 7). The findings disclosed that the hyoid dropped by 4-14 mm. in the open jaw position of almost all idiopathic open bite cases, whereas in normal subjects the hyoid remained fixed. Is this an indication of a muscular deficiency in the suprahyoid region, or is it common to all types of open bite? To answer this question nine patients with severe open bite and a history of persistent thumbsucking — none of whom recorded weakness of the jaw muscles — were examined using the same standardized cephalographic method previously described. The hyoid remained in fixed position during jaw opening, just as in the normal control group. The total number of subjects tested may seem insufficient to warrant a general statement of muscular deficiency in the suprahyoid region. These findings become more significant, however, when the cephalometric findings are combined with other measurements of muscle strength and when the weaknesses all relate to the same source of innervation (in these cases, the fifth cranial nerve).

The critical observer may discern in the

TABLE 7 Examples of cephalometric data.

	Sex	Extent of jaw movement*	Distance of hyoid to:*			
			Palatal line		Cervical vertebra	
			Closed	Open	Closed	Open
Normal	F	23	62	62	37	37
	F	23	63	61†	31	32
	M	23	78	78	46	44
Open bite thumbsuckers	M	16	85	87	45	45
	F	16	71	64†	52	53
	F	15	69	69	33	33
Idiopathic open bite	M	12	69	79	42	43
	M	17	77	86	37	39
	F	18	61	67	33	34
	F	22‡	70	77	34	35
	M	18	76	80	38	38
Bulbar polio open bite	M	19	76	83	33	33

*All measurements are in millimetres.
†The hyoid moved toward the mandible. This was found only in some normal individuals and thumbsuckers, which may indicate a very forceful contraction of the anterior group of suprahyoid muscles.
‡Although this case was surgically corrected one year prior to this study, the patient could not chew meat due to muscle weakness. She showed extensive hyoid displacement and a lordotic cervical spine.

illustrations that the sella line varies in its relation to the spinal axis. The following explanations are offered:

The cervical spine in the normal individuals generally appears straight, whereas in idiopathic open bite and bulbar poliomyelitis it is frequently lordotic, resulting in a backward tilt of the head.

The sella line may be compared to a pendulum, with its fixed point located in the sella. It is then understandable that tilting of the head either forward or backward may activate this pendulum and thus considerably alter its relationship to the spinal axis. Therefore, in patients with a lordotic cervical spine, we may expect to find a permanent alteration.

Another reason for the backward tilt of the head may be a subconscious attempt to keep the hyoid at a safe distance from vital neck structures when the contractability of the anterior suprahyoids has been lost. This coincides with similar findings by Brodie¹⁷ who calls this a protective arrangement. Further confirmation was found on the radiographs from this study. They revealed that, whether the patient belonged to the normal or to the experimental group, the hyoid maintained a nearly constant distance to the cervical column, although there were many variations in the cephalo-caudal direction within the experimental group.

This study should not convey the impression that (1) every patient with bulbar poliomyelitis or other enteric virus infection must develop residual head and neck symptoms, or that (2) every instance of weak jaw muscles must be accompanied by open bite and tongue thrust. It all depends on the extent and selectivity of neuromuscular damage.

CONCLUSION

These investigations indicate that idiopathic open bite cases resemble in a number of clinical features open bites preceded by bulbar poliomyelitis. Further, there are differences in a number of specific areas which delineate idiopathic open bite from open bites due to habits. This led to the formulation of the syndrome which seems to characterize idiopathic open bite: abnormal swallowing and tongue thrust, weakness of the oro-facial

complex, facial asymmetry, low hyoid resting position, increased hyoid displacement during function, and lordotic cervical column.

Recently reported animal experiments⁷³⁻⁷⁷ support the conclusions, based on the foregoing clinical observations, that viruses may indeed be responsible for head and neck deformities. Particularly significant was the fact that induced viral infections actually produced open bites which bear a strong resemblance to the human variety.

Further studies are now in progress to seek additional confirmation that viruses play an important role in the production of idiopathic open bite.

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1. Case, C. S. A practical treatise on the technics and principles of dental orthopedia and prosthetic correction of cleft palate. Ed. 2, Chicago, C. S. Case Co., 1922.
2. DeCoster, Lucien. Open-bite. (Treatment: etiology.) *Orthodia. & Oral Surg. Intl. J.* 22:912, 1936.
3. Francati, G. M. The open-bite problem. Thesis, Dept. of Orthodontia, School of Dent., State Univ. of N.Y. at Buffalo, 1962.
4. Jackson, A. F. Open bite. (Report of a case) *Am. J. Orthodont.* 37:623, 1951.
5. Ketcham, A. H. The treatment of open bite cases. *Orth., Oral Surg. & Rad. Intl. Jnl.* 17:807, 1931.
6. Nove, A. A. Cervico-facial orthopaedia. *D. Record* 66:25, 49, 86 and 109, 1946.
7. Peele, T. L. Neuroanatomical basis for clinical neurology. Ed. 1, New York, McGraw-Hill, 1954.
8. Rose, J. E. A textbook of orthodontia for undergraduate students. Ann Arbor, Edwards Brothers, Inc., 1935.
9. Strang, R. H. W. Textbook of orthodontia. Ed. 4, Philadelphia, Lea & Febiger, 1950.
10. Strang, R. H. W. and Thompson, W. M. A textbook of orthodontia. Ed. 4, Philadelphia, Lea & Febiger, 1958.
11. Tulley, W. J. Methods of recording patterns of behavior of oro facial muscles using electromyography. *D. Record* 73:741, 1953.
12. Graber, T. M. Fundamentals of occlusion. *J.A.D.A.* 48:177, 1954.
13. Haupl, Karl, Grossman, W. J. and Clarkson, Patrick. Textbook of functional jaw orthopaedics. St. Louis, Mosby, 1952.
14. Salzman, J. A. Orthodontics; (I) Practice and technics. Philadelphia and Montreal, Lippincott, 1957.
15. Swinehart, E. W. Clinical study of open-bite. *Am. J. Orthodont. & Oral Surg.* 28:18, 1942.
16. Tulley, W. J. The problem of etiology. *Europ. Orth. Soc. p.* 198, 1952.
17. Brodie, A. G. Consideration of musculature in diagnosis, treatment and retention. *Am. J. Orthodont.* 38:823, 1952.
18. Goates, W. A. and Bosma, J. F. Disability of speech resulting from malpositioned cervical spine following poliomyelitis. *J. Speech Hearing Dis.* p. 282, 1958.
19. Paul, J. R. Symposium on poliomyelitis (Introduction). *Am. J. M.* 6:No. 5, 1949.
20. Pruzansky, Samuel. Contribution of roentgenographic cephalometry to the study of congenital and acquired malformations of the face. *D. Clin. N. America* p. 395, 1960.

21. Ardran, G. M., Kemp, F. H. and Wegelius, C. Swallowing defect, after poliomyelitis. *Brit. J. Rad.* 30:169, 1957.
22. Baril, Claude and Moyers, R. E. Electromyographic analysis of the temporalis muscles and certain facial muscles in thumb and finger-sucking patients. *J. D. Res.* 39:536, 1960.
23. Baumann, T. Complications occurring in the maxillofacial region after poliomyelitis vaccination (Salk). *D. Abs.* 6:104, 1961.
24. Bosma, J. F. Deglutition: pharyngeal stage. *Physiol. Rev.* 37 (3):275, 1957.
25. Idem. Swallowing mechanism and its disturbance. Poliomyelitis. 4th Intl. Poliomyelitis Conference. Philadelphia, Lippincott, 1958.
26. Idem. Comparative physiology of the pharynx. Springfield, Ill., Charles C. Thomas, 1961.
27. Burket, L. W. Oral Medicine; diagnosis, treatment. Philadelphia, Lippincott, 1946.
28. Daniel, R. G. Evaluation of the effects of bulbar-spinal poliomyelitis on the occlusion of teeth. *Am. J. Orthodont.* 41:721, 1955. Abstract.
29. Von Koch, F. R. Differential diagnosis on peripheral facial paralysis in children; possible association with polio. *Deut. Med. Wschr.* 83:2073, 1958.
30. McKay, C. Poliomyelitic paralysis of fifth cranial nerve. *Irish J. M. Sc.* 391:338, 1958.
31. Muhlemann, H. R. and Boitel, R. H. Asymmetrical poliomyelitic paralysis of the masticatory musculature. Report of two cases. *Oral Surg., Oral Med. & Oral Path.* 4:38, 1951.
32. Odenheimer, K. J. Dentomedical implications of the residual effects of bulbar poliomyelitis. *Oral Surg., Oral Med. & Oral Path.* 14:401, 1961.
33. Ponitz, P. V. Limitations of interceptive orthodontic treatment. *D. Clin. N. America* p. 435, 1959.
34. Pruzansky, Samuel. Application of electromyography to dental research. *J.A.D.A.* 44:49, 1952.
35. Idem. Congenital malformations. *J.A.D.A.* 56: 633, 1958.
36. Salzman, J. A. Orthodontics: principles and prevention. Philadelphia and Montreal, Lippincott, 1957.
37. Thoma, K. H. The effect of skeletal diseases on the jaws and teeth. (acromegaly). *Harvard Den. Rec.* 11:35, 1936-37.
38. Bosma, J. F., Goates, W. A. and Nielson, M. A. Mechanisms of disability of speech resulting from poliomyelitis. *Annals of Otol., Rhin. and Laryng.* 67: 1957.
39. Boyd, W. Textbook of pathology, structure and function in diseases thoroughly reviewed. Ed. 7. Philadelphia, Lea & Febiger, 1961.
40. Trueta, J., Wilson, A. B. K. and Agerholm, Margaret. Handbook on poliomyelitis. Springfield, Ill., Charles C. Thomas, 1956.
41. Bosma, J. F. Studies of the pharynx. II. Poliomyelitis disabilities of the lower pharynx. *Pediatrics* 19:1053, 1957.
42. Dalldorf, Gilbert. The coxsackie viruses. 4th Intl. Poliomyelitis Conference. Philadelphia and Montreal, Lippincott, 1958.
43. Duxbury, A. E., White, J., Lipscomb, B. M. and Williamson, W. S. Illness simulating paralytic poliomyelitis associated with coxsackie group A type 4 virus infection. *Med. J. Aust.* 48:(2), 708, 1961.
44. Furcolow, M. L. Epidemics of aseptic meningitis due to coxsackie B-5 virus. 4th Intl. Poliomyelitis Conference. Philadelphia and Montreal, Lippincott, 1958.
45. Karzon, D. T. Outbreaks of aseptic meningitis caused by type 6 ECHO virus. Poliomyelitis. 4th Intl. Poliomyelitis Conference. Philadelphia and Montreal, Lippincott, 1958.
46. Idem. The enteroviruses and the aseptic meningitis syndrome. *Quart. Rev. of Pediatrics* 14:78, 1959.
47. Karzon, D. T., Eckert, G. L., Barron, A. L., Hayner, N. S. and Winkelstein, W., Jr. Aseptic meningitis epidemic due to ECHO 4 virus. *Am. J. Dis. of Child.* 101:610, 1961.
48. Cecil, R. L. and Loeb, R. F. Textbook of medicine. Ed. 10. Philadelphia, Saunders, 1959.
49. Melnick, J. L. ECHO viruses and their classification. Poliomyelitis. 4th Intl. Poliomyelitis Conference. Philadelphia and Montreal, Lippincott, 1958.
50. Idem. Classification of human entero-viruses. *Virology* 16:501, 1962.
51. Stowens, D. Pediatric pathology. Baltimore, Williams & Wilkins, 1959.
52. King, D. L. and Karzon, D. T. An epidemic of aseptic meningitis syndrome due to ECHO virus type 6 — Sequelae three years after infection. *J. Pediatrics* 29:432, 1962.
53. Andrewes, C. H. Summary on viruses. Poliomyelitis. 4th Intl. Poliomyelitis Conference. Philadelphia and Montreal, Lippincott, 1958.
54. Pollock, G. A. Discussion on scoliosis. 4th Intl. Poliomyelitis Conference. Philadelphia and Montreal, Lippincott, 1958.
55. Odenheimer, K. J. The idiopathic open bite, a search for its etiology. Ph.D. Thesis, Western Reserve University, 1964.
56. Ardran, G. M. and Kemp, F. H. A radiographic study of movements of the tongue in swallowing. *D. Practitioner* 5:252, 1955.
57. Bosma, J. F. Studies of the pharynx. I. Poliomyelitis disabilities of the upper pharynx. *Pediatrics* 19:881, 1957.
58. Bosma, J. F. Personal communication.
59. Brodie, A. G. Comparative anatomy of the pharynx. Intl. Symposium 1959. Congenital anomalies of the face and associated structures; Proceedings compiled and edited by Samuel Pruzansky. Springfield, Charles C. Thomas, 1961.
60. Carlsöö, S. Electromyographic study of the activity of certain suprahyoid muscles (mainly anterior belly and digastric muscle) and of reciprocal innervation of elevator and depressor musculature of mandible. *Acta Anatomica* 26:81, 1956.
61. DeWeese, David and Saunders, W. H. Textbook of otolaryngology. St. Louis, Mosby, 1960.
62. Durzo, C. A. and Brodie, A. G. Growth behaviour of the hyoid bone. *Angle Orthodont.* 32:193, 1962.
63. Eckert, M. A. Normale und pathologische physiologie der nasen und mundatmung. *Deutsche Zahn — Mund und Kieferk.* 18:345, 1953.
64. James, W. W. and Hastings, S. Discussion of mouth breathing and nasal obstruction. *Proc. Roy. Soc. Med.* 25:1343, 1932; also *J. Laryng. & Otol.* 47:614, 1932.
65. King, E. W. Roentgenographic study of pharyngeal growth. *Angle Orthodont.* 22:23, 1952.
66. Mosher, H. P. X-ray study of movements of the tongue, epiglottis and hyoid bone in swallowing, followed by discussions of difficulty in swallowing caused by retropharyngeal diverticulum postericoid webs and exostoses of cervical vertebrae. *Laryngoscope* 37:235, 1927.
67. Pendergrass, E. P., Schaeffer, J. P. and Hodes, P. J. The head and neck in roentgen diagnosis. Ed. 2. Springfield, Ill., Charles C. Thomas, 1956.
68. Shapiro, H. H. Applied anatomy of the head and neck. Ed. 2. Philadelphia, London and Montreal, Lippincott, 1947.
69. Shelton, R. L., Jr. Displacement of the pharyngeal portion of the tongue and of the hyoid and larynx in deglutition, phonation and postural change. Ph.D. Thesis, Univ. of Utah, 1959.
70. Sicher, Harry. Oral anatomy. Ed. 3. St. Louis, Mosby, 1960.
71. Van Riper, Charles. Speech correction; principles and methods. Ed. 3. New York, Prentice-Hall, 1958.
72. Warren, L. M. Longitudinal study of the position of the hyoid bone in different malocclusions. Unpublished thesis, Dept. Ortho., Western Reserve Univ., 1961.
73. Cohen, M. M. and Sklar, Gerald. Deformities of the craniofacial and dental complex in the H-1 virus modified hamster. *J. Oral Surg., Oral Med. & Oral Path.* 17:533, 1964.
74. Toolan, Helene W. Experimental production of mongoloid hamsters. *Science* 131:1446, 1960.
75. Toolan, Helene W., Dalldorf, Gilbert, Barklay, Marion, Chandra, Satish and Moore, Alice E. An unidentified, filtrable agent isolated from transplanted human tumors. *Proced. Nat. Acad. Sciences* 46:1256, 1960.
76. Toolan, Helene W., Saunders, E. L., Greene, E. L. and Fabricio, D. P. Further studies on the electron microscopy of the H-1 virus. *Viol.* 22:286, 1964.
77. Toolan, Helene W. Personal communication.

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1963 Survey of Dental Practice

4. Incomes and expenses in relation to personnel, equipment and 'busyness' of practice

Bureau of Economic Research

This chapter examines the number of employees, type of equipment and 'busyness' of Canadian dentists and discloses what relationships exist between these factors and gross income, expenses and net income from private practice.

Average net income is the mean average of net incomes from private practice of all dentists in full-time private practice and of those part-time salaried dentists practising independently 30 or more hours a week. The net income figures in this chapter do not include income from part-time salaried positions.

INCOMES VARY WITH NUMBERS OF CHAIRS AND EMPLOYEES

Forty per cent of the reporting practising dentists had two chair offices and employed one dental assistant. Almost 20 per cent had one dental chair and one dental assistant, 11 per cent had one den-

Enquête de 1963 sur la profession dentaire

4. Revenus et frais professionnels par rapport au personnel, à l'équipement et à 'l'affairement' des dentistes

Bureau des recherches économiques

Le présent chapitre étudie le nombre d'employés, le type d'équipement, et le taux 'd'affairement' des dentistes canadiens, et expose les rapports qui existent entre ces divers facteurs et le revenu brut, les frais professionnels et le revenu net de ces derniers.

Les chiffres relatifs au revenu net représentent la moyenne des revenus nets de tous les dentistes qui exercent à plein temps dans un cabinet privé, et de tous ceux qui travaillent à demi-temps à salaire fixe, et pratiquent dans un cabinet dentaire privé une trentaine d'heures par semaine ou davantage. On n'a toutefois pas calculé dans cette moyenne les revenus que constituent les salaires fixes.

LES REVENUS VARIENT AVEC LE NOMBRE DE FAUTEUILS ET D'EMPLOYÉS

Quarante pour cent des dentistes qui ont répondu à cette enquête disposent de

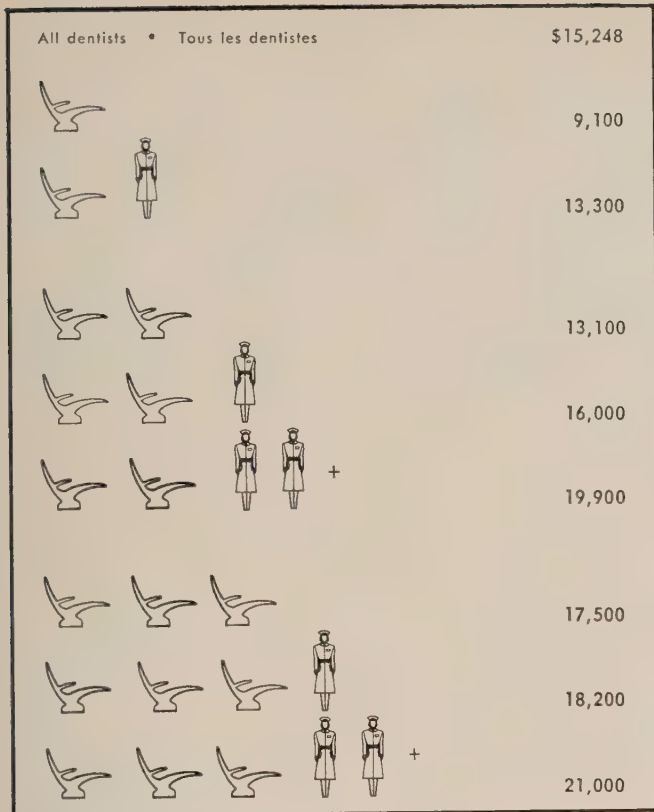


FIGURE 1 Net incomes vary with numbers of dental chairs and assistants • Les revenus nets varient avec le nombre de fauteuils et d'assistantes dentaires.

tal chair but no employees, and another 10 per cent had two chairs and either one dental assistant and one secretary or two or more dental assistants. Eighty per cent of all dentists practised with one of these five combinations of chairs and employees. The other 20 per cent were scattered among more than 50 different combinations of chairs and personnel.

Among the more common combinations, dentists with two chairs and either one dental assistant and one secretary or two or more assistants had the highest gross incomes, expenses and net incomes in all three Surveys of Dental Practice (1953, 1958 and 1963). Dentists with one chair and no employees have consistently had the lowest incomes and expenses.

The highest gross incomes, expenses and net incomes for all practising dentists were reported by the few dentists who had offices with three or more dental chairs and four or more employees. The average net incomes from practice for dentists with three or more chairs and two or more dental assistants was \$20,958 (Figure 1). A similar net income (\$20,294) was reported by dentists with three chairs and one dental assistant and one secre-

taire. Près de 20 pour cent ont un seul fauteuil et pas d'employées, enfin les 10 pour cent restants ont deux fauteuils, et ont soit une assistante dentaire et une secrétaire, soit deux assistantes dentaires ou plus. Quatre-vingt pour cent des dentistes se classent nettement dans l'une ou l'autre de ces cinq catégories, mais les 20 autres pour cent en combinent certaines caractéristiques de plus de 50 manières différentes.

D'après les résultats des trois Enquêtes sur la profession dentaire (1953, 1958 et 1963), il semble que ce soient, parmi les dentistes qui se classent dans les cinq catégories les plus courantes, ceux qui ont deux fauteuils et soit une assistante dentaire et une secrétaire, soit deux assistantes dentaires ou plus, qui indiquent les taux les plus élevés aussi bien sur le plan des revenus bruts que sur ceux des frais et des revenus nets. Par contre, les dentistes n'ayant qu'un fauteuil et pas d'employés ont à chaque reprise présenté les taux de revenus et de frais les plus bas.

Cependant, si l'on considère l'ensemble des catégories, ce sont cette fois les dentistes qui disposent de trois fauteuils ou plus, ainsi que de quatre employés ou davantage, qui l'emportent sur toute la ligne. Les revenus bruts des dentistes ayant trois fauteuils ou plus et deux assistantes dentaires ou plus s'élèvent en moyenne à \$20,958.00. Ceux des dentistes munis de trois fauteuils, d'une assistante dentaire et d'une secrétaire, atteignent presque le même taux (\$20,294.00). Enfin, ceux des dentistes qui ont trois fauteuils et deux ou plusieurs assistantes dentaires dépassent eux aussi \$20,000.00.

Les dentistes dépourvus d'employés, qu'ils soient munis de un, deux, trois fauteuils ou davantage, accusent d'autre part la moyenne de revenu net la plus basse. Par exemple, les dentistes possédant un fauteuil gagnent \$4,239.00 de moins que ceux qui disposent en outre d'une assistante (\$9,097.00 par rapport à \$13,336.00). Par ailleurs, dans toutes les catégories, les dentistes employant des assistantes dentaires indiquent un taux de revenu net légèrement plus élevé que les dentistes munis d'une secrétaire ou d'une réceptionniste. Parmi les dentistes équipés de deux fauteuils, ceux qui ont à leur

tary. Those with three chairs and two or more dental assistants and one secretary also made over \$20,000.

In each of the three categories, one, two, three and more chairs, dentists with no employees had the lowest average net incomes. For example, dentists with one chair and one assistant made \$4,239 more than dentists with one chair and no employees (\$13,336 compared to \$9,097) (Figure 1). In all chair categories, those dentists who employed assistants reported slightly higher net incomes than dentists employing secretaries or receptionists. Those dentists with two chairs who had the highest incomes employed one hygienist and one assistant or two or more assistants. They made almost \$4,000 more in net incomes than dentists with two chairs and only one dental assistant (Figure 1). In the next five year period, 1963 to 1968, a trend will probably occur toward more dentists employing two dental assistants or one assistant and one hygienist.

service une hygiéniste et une assistante, ou bien deux ou plusieurs assistantes dentaires, présentent le taux de revenu maximum. Ils gagnent presque \$4,000.00 de plus que les dentistes qui ne disposent que d'une seule assistante. D'ailleurs, il est fort probable qu'au cours des cinq prochaines années (1963 à 1968), le nombre de dentistes employant deux assistantes dentaires, ou bien une hygiéniste et une assistante, augmente considérablement.

POUR LES DENTISTES DÉPOURVUS D'EMPLOYÉS,
REVENU NET DE \$8,900

D'après cette enquête, 8 pour cent des dentistes exerçant dans un cabinet privé n'ont pas d'employés à leur service. Huit pour cent en ont à demi-temps. Quarante-six pour cent emploient une personne à temps complet ainsi que 18 autres pour cent, lesquels disposent en outre d'une

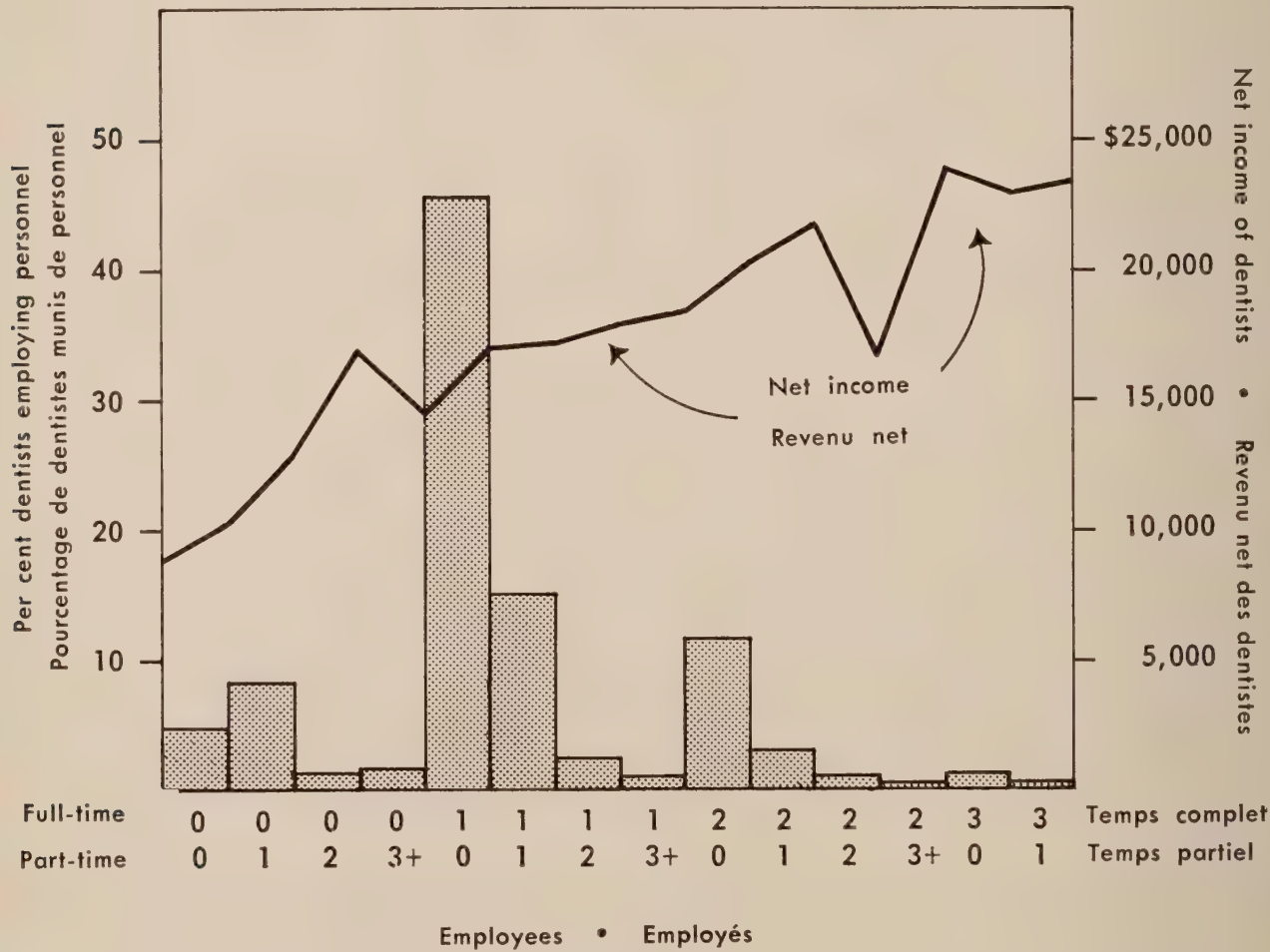


FIGURE 2 Thirty-eight per cent of all dentists have more than one full-time employee and earn higher than average incomes • Trente-huit pour cent des dentistes disposent de plus d'une employée à temps complet, et dépassent la moyenne des revenus nets.

DENTISTS WITH NO EMPLOYEES NET ONLY \$8,900

According to the survey, eight per cent of all dentists in private practice had no employees either full-time or part-time. Another eight per cent had only part-time employees. Forty-six per cent of the practising dentists surveyed had one full-time employee, 18 per cent had one full-time employee and one or more part-time employees, and 12 per cent had two full-time employees. Dentists with more than two full-time employees comprised the remaining eight per cent of the total sample (Figure 2).

The percentage of dentists with no employees has decreased greatly since 1953. In that year, 19 per cent of the private practitioners had no employees. The figure had fallen to 13 per cent in 1958 and by 1963 had gone down another five percentage points to eight per cent.

Mean gross income for dentists with no employees was only \$14,748. With each full-time employee added, gross income rose until it reached \$46,207 for dentists with three full-time employees while expenses and net incomes rose to \$22,224 and \$23,983 respectively. The figures for those dentists with more than three full-time employees are rather erratic, probably due to sampling error. It appears, however, that additional increments of labour do not necessarily yield significant increases in either average gross or average net incomes.

Mean net incomes of dentists who employed more than one full-time employee were above the national average of \$15,248 for all dentists in private practice. Net income, which was only \$8,866 for dentists with no employees, rose to \$14,463 with one employee and \$18,511 with two employees. Those dentists having three full-time employees netted 171 per cent more than dentists with no employees (Figure 2).

DENTISTS WITH 5 OR MORE CHAIRS GROSS \$52,700

The majority of the dentists in private practice (58 per cent) reported that they

ou de plusieurs employées à demi-temps. Douze pour cent en emploient deux à temps complet, et les huit pour cent restants jouissent des services de plus de deux employés à temps complet.

Le pourcentage des dentistes totalement dépourvus d'employés a fortement diminué depuis 1953. Il égalait alors 19 pour cent. Ayant rejoint 13 pour cent en 1958, il est encore réduit de cinq pour cent en 1963.

Alors que le revenu brut des dentistes sans employés ne s'élève qu'à \$14,748.00, il atteint \$46,207.00 pour les dentistes munis de trois employés à temps complet, lesquels accusent également \$22,224.00 de frais professionnels et \$23,983.00 de revenu net. Les chiffres se rapportant aux dentistes disposant de plus de trois employés à temps complet semblent trop excessifs pour être exacts. Quoi qu'il en soit, l'accroissement du personnel n'entraîne pas nécessairement une augmentation notable des revenus bruts ou nets.

Le revenu net des dentistes employant plus d'une assistante à temps complet dépasse la moyenne de \$15,248.00 calculée pour l'ensemble des praticiens du pays. Alors qu'il n'égale que \$8,866.00 pour les dentistes dépourvus d'employés, il s'élève à \$14,463.00 pour ceux qui ont une employée, et à \$18,511.00 pour ceux qui en ont deux. Enfin, le revenu net des dentistes ayant plus de trois employés à temps complet excède de 171 pour cent celui des dentistes qui n'en ont pas du tout.

POUR LES DENTISTES AYANT CINQ FAUTEUILS OU PLUS, REVENU BRUT DE \$52,700

La majorité des dentistes qui ont participé à l'enquête (58 pour cent) avaient deux fauteuils dentaires. Le tiers n'en avait qu'un seul, et les neuf autres pour cent en avaient trois ou davantage.

Donc, l'augmentation du nombre de fauteuils dentaires que l'on avait déjà relevée dans la profession, au cours de l'enquête de 1958, s'est poursuivie. En effet, il y a cinq ans, 44 pour cent des dentistes n'avaient encore qu'un seul fauteuil, et 48 pour cent en avaient deux. Mais depuis

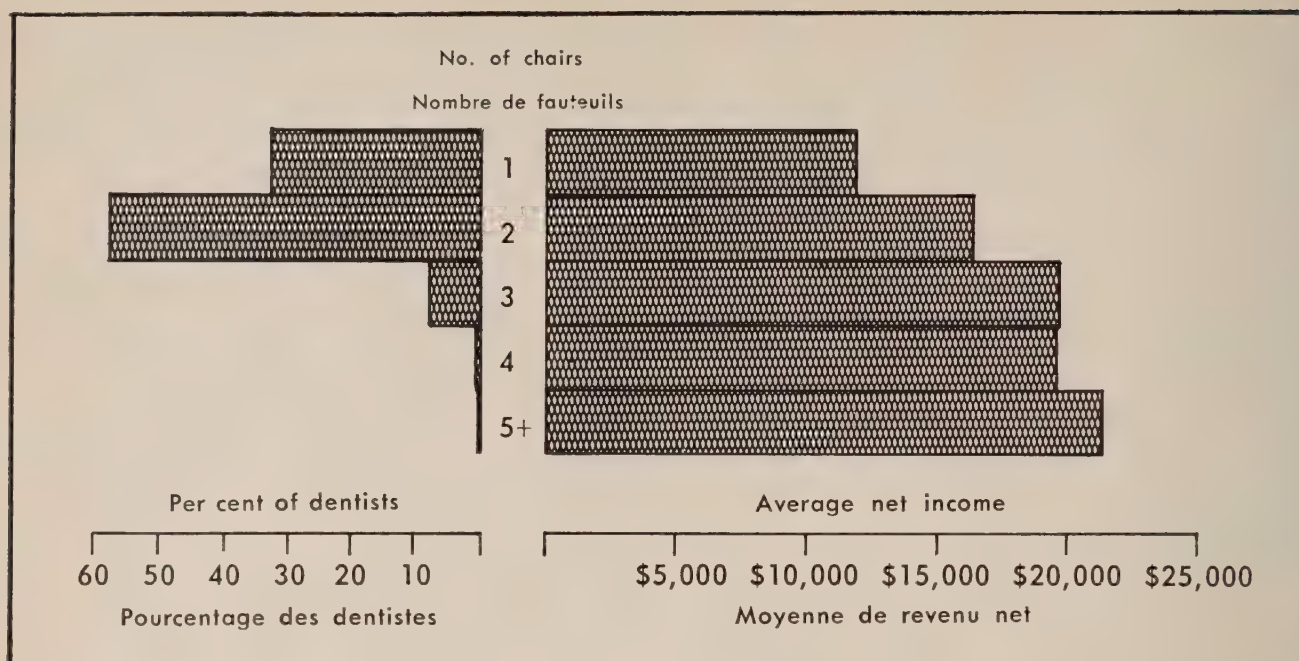


FIGURE 3 Net income rises with number of dental chairs • Le revenu net augmente avec le nombre de fauteuils dentaires.

had two dental chairs. One third had only one dental chair and the remaining nine per cent had three or more chairs.

The trend toward increasing the number of dental chairs in practices noted in the 1958 survey has continued. Five years ago, 44 per cent of all dentists still had only one dental chair and 48 per cent had two chairs. Since 1958, the percentage of dentists with two chairs has risen 10 percentage points while the percentage having one chair has fallen 11 percentage points. In the same period, the percentage of dentists having three dental chairs has doubled from four per cent in both 1953 and 1958 to eight per cent in 1963.

Gross income rose with each dental chair added from an average \$20,815 for dentists with one chair to \$52,668 for those with five or more chairs. Expenses rose even faster. Expenses for the dentist with five or more chairs were three and one half times greater than for the dentist with one chair. Net income was 80 per cent greater for the dentists with five or more chairs than for the dentist with one (\$21,299 versus \$11,808) (Figure 3).

HOW OTHER DENTAL EQUIPMENT AFFECTS INCOME

X-Ray Machines. — Ninety-seven per cent of the reporting dentists used x-ray

lors, le taux de dentistes munis de deux fauteuils s'est accru de 10 pour cent, alors que celui des dentistes pourvus d'un fauteuil a baissé de 11 pour cent. En même temps, le pourcentage des dentistes disposant de trois fauteuils a doublé. De quatre pour cent en 1953 et 1958, il a passé à huit pour cent en 1963.

Les résultats démontrent que le revenu brut s'accroît avec le nombre de fauteuils, s'échelonnant entre un minimum de \$20,815.00 pour les dentistes ayant un fauteuil, et un maximum de \$52,668.00 pour ceux qui en possèdent cinq ou davantage. Il en va de même des frais professionnels, lesquels augmentent plus rapidement encore. Ils sont trois fois et demie plus élevés chez les dentistes disposant de cinq fauteuils ou plus, que chez ceux qui n'en ont qu'un seul. Enfin, le revenu net des dentistes à cinq fauteuils excède de 80 pour cent celui des dentistes à un fauteuil (\$21,299.00 par rapport à \$11,808.00).

EN QUOI LE RESTE DE L'ÉQUIPEMENT DENTAIRE INFLUENCE-T-IL LES REVENUS

Appareils radiologiques. — Quatre-vingt-dix-sept pour cent des dentistes qui ont pris part à cette enquête utilisent un appareil radiologique. Alors qu'en 1953, 10 pour cent n'en employaient pas, seuls trois

equipment. While 10 per cent of the dentists did not use x-ray equipment in 1953, in 1963 only three per cent did not use it. Those who used x-ray equipment had average net incomes of \$15,366 while dentists who practised without x-ray equipment earned \$10,901.

High-Speed Equipment. — Ninety-one per cent of the practising dentists reported using high-speed equipment. Their net incomes were 17 per cent above dentists operating without high-speed.

General Anaesthesia. — Sixteen per cent of the dentists reported that they used general anaesthesia in their offices in 1963. This is slightly less than the percentage using general anaesthesia equipment 10 years ago. The average net income of dentists using general anaesthesia was \$1,500 lower than the net income of the 84 per cent who said they did not use it.

BUSIER DENTISTS HAVE HIGHER INCOMES

In the 1963 survey, for the first time, dentists were asked to check one of four descriptions which best described how busy their practices were. Thirty-six per cent reported that they were too busy to treat all people requesting appointments while another 24 per cent reported that all people requesting appointments had received them but they, the dentists, felt more rushed and/or worked longer hours than they liked. Thirty-one per cent said that they had provided dental care for all who requested appointments and felt they had enough but not too many patients. The remaining nine per cent said they were not busy enough and wanted to have more patients.

Average net income from private practice was highest for those who claimed they saw all people requesting appointments but were too busy. It was \$16,770 for dentists in this category and a little lower, \$16,041 for those dentists who were too busy to treat all people requesting appointments. Perhaps the former group worked under more pressure for longer hours in order to accept all patients seeking appointments and consequently netted

pour cent sont encore dans ce cas en 1963. Le revenu net de ceux qui en font usage s'élève en moyenne à \$15,366.00, alors qu'il n'atteint que \$10,901.00 pour les dentistes qui ne s'en servent pas.

Équipement haute vitesse.—Quatre-vingt-onze pour cent des dentistes disposent d'un équipement à haute révolution. Leur revenu net excède de 17 pour cent celui des autres dentistes.

Anesthésie générale.—En 1963, 16 pour cent des dentistes pratiquaient encore l'anesthésie générale dans leurs cabinets. Ce taux est légèrement moins élevé qu'il ne l'était il y a 10 ans. Le revenu net de ces dentistes est de \$1,500.00 inférieur à celui des 84 pour cent qui ne se servent pas d'un matériel d'anesthésie générale.

REVENUS PLUS ÉLEVÉS POUR LES DENTISTES PLUS AFFAIRÉS

Pour la première fois au cours de cette enquête, on a prié les dentistes de choisir parmi quatre descriptions, celle qui indiquait le plus clairement leur 'affairement' professionnel. Trente-six pour cent d'entre eux ont déclaré être trop occupés pour pouvoir soigner toutes les personnes qui réclament des rendez-vous. Vingt-quatre pour cent ont affirmé avoir accordé un rendez-vous à toutes les personnes qui en avaient fait la demande, mais que cela les mettait sous tension et les obligeait à travailler plus longtemps. Trente et un pour cent ont déclaré avoir dispensé des soins dentaires à tous ceux qui avaient fait appel à eux, et ne s'estiment pas surchargés de travail. Les neuf pour cent restants considèrent leur clientèle insuffisante et auraient le temps de recevoir un plus grand nombre de malades.

Ce sont les dentistes qui ont accordé des rendez-vous à toutes les personnes qui en voulaient, et qui se trouvent débordés, qui ont accusé le revenu net le plus élevé (\$16,770.00), alors que les dentistes trop occupés pour recevoir tous les malades présentent un taux légèrement moindre (\$16,041.00). Cette différence pourrait s'expliquer par le fait que les premiers

a slightly higher income. Average net incomes by the other two categories of 'busyness' were considerably lower. Net income was \$14,656 for those who felt they had enough but not too many demands on their practice time and, for those who would like to have had more patients, net income was lowest of all — \$10,662.

This report is condensed from the *Survey of Dental Practice, 1963* published by the Bureau of Economic Research.

travaillent un plus grand nombre d'heures afin de pouvoir accorder tous les rendez-vous réclamés. Les revenus nets des dentistes qui se classent dans les deux autres catégories sont nettement moins élevés: \$14,656.00 pour ceux qui s'estiment suffisamment occupés, et \$10,662.00 pour ceux qui aimeraient recevoir davantage de malades.

Ce communiqué est un résumé de l'*Enquête de 1963 sur la profession dentaire*, publiée par le Bureau des recherches économiques.

Dentists and the Canada Pension Plan

At the first of this year, the Canada Pension Plan began operating in all provinces except Quebec which has a comparable plan. With a few exceptions, coverage is compulsory for all workers between the ages of 18 and 70 who are employees earning over \$600 annually or self employed persons earning over \$800 annually. A person employed by a spouse or a parent is not covered. If you have made private pension arrangements, you must still contribute to the Canada Pension Plan.

Everyone covered by the plan must have a Social Insurance Number. If you do not have one, application forms may be obtained from the Unemployment Insurance Commission, the Taxation Division of the Department of National Revenue, the Department of National Health and Welfare or the Post Office.

The pension contributions you make are related to your earnings up to a maximum of \$5,000 a year; contributions are not paid on \$600 of annual earnings nor on income from investments, annuities or pensions.

As employers, dentists are responsible for deducting employee's contributions from their pay cheques at the rate of 1.8 per cent on earnings up to \$4,400 (\$5,000 maximum minus \$600 exemption). The employer must match these contributions and forward them, either through his bank or directly, to the Department of National Revenue by the 15th of the

month following the month in which the remuneration was paid.

Dentists who have salaried employees earning in excess of \$5,000 a year will deduct at the rate of 1.8 per cent of the employee's total salary minus a pro-rated portion of the \$600 exemption until the maximum contribution of \$79.20 (1.8 per cent of \$4,400) is reached. Once \$158.40 (\$79.20 from each of the employee and the employer) has been submitted, no more deductions will be made during the remainder of the year for that employee. If, during the year, you have an employee who has already contributed the maximum through a previous employer, you must remit pension contributions regardless of the contributions already made. Employees may claim a refund on these contributions; employers may not.

Self-employed dentists pay contributions to the plan at the rate of 3.6 per cent on income between \$600 and \$5,000. If your pension contribution will exceed \$40 for a year, you must pay it in quarterly instalments on the same dates as instalments on income tax — March 31, June 30, September 30 and December 31. Your contributions can be deducted from your taxable income. Canada Pension Plan contributions have no effect on contributions to registered retirement savings plans to which self-employed individuals may contribute a non-taxable amount the lesser of \$2,500 or 20 per cent of earned income.

Immigrant dentists

The recent controversy over the refusal of the Ontario College of Physicians and Surgeons to license certain foreign physicians has undoubtedly rekindled suspicion in some quarters that such refusals are prompted by economic self-interest rather than a lack of qualifications in the applicants. Whether or not this particular episode moved the Ontario government to establish a committee to "inquire into all matters pertaining to the preparation, education, training, licensing, control and discipline of all those involved in the practice of the healing arts" is quite immaterial. What matters is that a government committee is about to scrutinize the self-governing health service groups in the nation's biggest province and that dentists should be rightfully concerned about how their profession will emerge from this investigation.

Whatever kind of dental care scheme may ultimately eventuate in Canada, the demand for qualified personnel will be vastly increased. It is in this context that the Ontario inquiry must be considered. A question therefore arises as to whether the profession is doing all that it reasonably can to promote an adequate flow of new members into its ranks.

In suggesting steps to increase the number of Canadian dentists, the Hall Commission criticized what it termed as the "restrictive effect of the various provincial [dental] licensing regulations." The Commission contended that an increased inflow of immigrant dentists would result "if these regulations could be made less restrictive without adversely affecting quality."¹ The profession countered this argument by citing the difficulty in appraising the qualifications of dentists who graduate from a school outside North America. It was pointed out that a foreign physician desiring registration for practice must generally obtain, by examination, the certificate of the Medical Council of Canada. To take these examinations, the applicant must acquire an enabling certificate from one of the provincial medical licensing authorities. Among other requirements for the enabling certificate is proof of having completed two years of internship in an approved hospital. But dental internship facilities are not readily available in Canada. Dental licensing authorities have therefore felt compelled to require most foreign dentists to spend one, two or even three years in an approved (Canadian or US) dental school so as to qualify themselves for provincial licensure like any other graduate of an approved dental school.²

The number of years a foreign dentist is required to take in a North American school depends upon the school from which he graduated abroad, his qualifications and whatever language or other achievement tests may be required of him in Canada. Thus, graduates of American dental schools are usually admitted directly to provincial licensing examinations. Some provinces also permit university dental graduates from the United Kingdom, Australia,

New Zealand and South Africa to take these examinations. All others, however, are required to return to an approved school in order to qualify for licensure in Canada.

For their part, the dental licensing authorities sincerely endeavour to protect the Canadian public by ensuring that those who are granted practising privileges meet minimum standards of competence. Yet the foregoing requirements, though they reflect a legitimate purpose, do not entirely dispel the notion that some competent and desirable foreign graduates may be deterred by the uninviting prospect of being returned to the status of dental students.

As a matter of justice, some observers have called for a system of evaluating dental schools on a world wide basis to the end that migrant dentists' qualifications may be more readily and accurately assessed. But, laudable as this proposal may be, its implementation is beset by almost insuperable obstacles. Evaluation of the individual appears to offer a more practical solution. In this context, it is of interest that the American Dental Association already administers a science achievement examination to evaluate dentists from abroad who seek admission to undergraduate dental programs or advanced educational programs in the United States. There may now be compelling reasons for adopting a similar procedure here in Canada, not only to evaluate immigrant dentists in terms of placing them in our dental schools, but — even more important — to identify those who should be admitted directly to licensing examinations. Perhaps our attitudes toward this problem could also benefit from the constant quest for improvement that has characterized the technical progress of dentistry in Canada.

1. Canada. Royal Commission on Health Services. 1964—Volume I. Ottawa, Queen's Printer, 1964.
2. Canadian Dental Association. Statement of the Canadian Dental Association on the recommendations of the Royal Commission on Health Services. May 28, 1965.

As Others See It

Fluoridation for Montreal: Expo '67 target

The people of Quebec look forward eagerly to Expo '67 — Montreal's universal and international exhibition in 1967. Their enthusiasm and pride grow apace as the list of participating nations lengthens and various ambitious projects assume concrete form.

Canada, Quebec and Montreal will be at the centre of attention for "Man and his World." Expo '67 will be a red letter event. The eyes of the world will be turned on Quebec — on the achievements of its young and dynamic people. But there remains one task which should be close to the heart of every dentist — fluoridation of the Montreal water supply.

Expo '67 provides an unparalleled opportunity for promoting this important health measure. Health ministries around the globe are well aware that Canada and the United States pioneered the studies that established the safety and effectiveness of fluoridation. But overseas visitors, particularly those interested in public health, must surely be astounded that the biggest city of our land does not yet fluoridate its water. It is up to us to bring this important matter to the attention of our authorities. Some readers will doubtless protest, claiming that

the profession has already made countless representations to these authorities. That may be so; nevertheless, this is the moment — more than any other — to resume the offensive.

A task of this magnitude must not be permitted to fall on a few willing shoulders; it is a job for organized dentistry. But at what level? The College of Dental Surgeons of the Province of Quebec, the Dental Association of the Province of Quebec, or the dental societies in the City of Montreal? The successful combined meetings of the three Montreal societies have shown us that concerted action is possible and could be crowned with success.

This brings up the question of how to promote such an enormous project. One thinks immediately of massive publicity campaigns to educate the public. These are undoubtedly necessary, particularly in connection with fluoridation plebiscites. But a successful campaign is expensive. Moreover, there is the very real danger of stirring up the opponents. This small but noisy segment could give an impression of massive opposition and raise doubts in the minds of officialdom.

We believe the educational efforts should be aimed at municipal authorities. A small group of carefully selected dentists should personally contact civic officials to alert them about the need for fluoridation in Montreal. Without this kind of preparatory effort, a supporting brief would be a completely wasted effort.

Should Montreal dentists take up this challenge and be successful, their action would have province-wide repercussion since smaller municipalities hesitate as long as Montreal and Quebec City do nothing at all.

Our profession should see to it that Montreal becomes the true symbol of "Man and his World"—a place where men of the future can enjoy good dental health.

Paul Simard

Le Journal dentaire du Québec, Vol. 2, July-August 1965. La fluoration à Montréal en 1967? Translated and reprinted by permission.

Equilibre entre la pratique générale et la spécialité

La spécialisation, ainsi que le fait remarquer G.H. Sperber,¹ est une médaille à deux revers. Si elle apporte d'énormes avantages dans l'amélioration des soins, elle tend en même temps à limiter le spécialiste à son domaine et parfois, à diminuer le rôle du praticien général. Les professions touchant à la santé devront relever le défi et équilibrer les bienfaits de la spécialisation et les avantages tout aussi souhaitables des soins complets dispensés par le praticien général—défi qui pourrait s'accommoder de solutions diverses, selon le décor géographique dans lequel les acteurs jouent leur rôle respectif.

La spécialisation dentaire a avancé à grands pas en Amérique du Nord. En Europe, au contraire, les gens de la profession se montrent très réservés envers la spécialisation. Held,² de Genève, tout en reconnaissant à quel point la spécialisation dentaire s'est répandue chez nous, soutient qu'il ne faut pas souhaiter qu'elle se développe autant en Europe. Choisisant comme exemple la périodontie, il affirme que la conception américaine de cette discipline est beaucoup trop restreinte. Il s'ensuit que le praticien général tend à négliger ou ignorer cet aspect de la santé de ses patients. La périodontie, explique-t-il, comprend tous les aspects de la pratique quotidienne. Il est absurde d'entreprendre une restauration quelque peu élaborée, un traitement d'orthodontie ou une prothèse, sans considérer auparavant les répercussions qu'ils peuvent avoir sur le périodontium. Passant ensuite à ce sujet favori des conventions qu'est la reconstruction totale, Held la qualifie de forme complexe de traitement

péridentaire qui requiert toutes les aptitudes et les connaissances qu'un praticien compétent peut réunir. Fragmenter la reconstruction en disciplines disparates et quasi indépendantes reviendrait à renier totalement l'unité de fonction du corps et l'interdépendance de ses parties — au grand détriment du patient.

Au moment de sa graduation, le dentiste a acquis une compétence suffisante dans toutes les phases de la pratique dentaire. Il doit conserver le souci de poursuivre toutes les phases de la pratique sans être découragé par la multiplication des disciplines qui s'emparent des domaines les plus importants de la pratique. Ceci, évidemment, ne signifie pas qu'il n'y ait pas de place pour ceux qui sont spécialement compétents dans des domaines précis, bien au contraire. Il nous faut un noyau de ces spécialistes pour assurer les services de consultation, d'enseignement et de recherche que les autres praticiens ne peuvent fournir. Cette élite doit donner l'allure et brûler les étapes dans la recherche du savoir, mais sa contribution doit aller de pair avec l'amélioration constante de la compétence des praticiens généraux et de la valeur des soins qu'ils dispensent.

Atteindre à un tel équilibre n'est pas tâche facile; c'est pourtant celle qu'il nous échoit d'assumer résolument, en particulier au moment où le nouveau Collège royal des chirurgiens dentistes du Canada se voit chargé de régir la pratique spécialisée.

1. Sperber, G. H. Interrelationship of oral and general health. J.A.D. Canad. 31:725, 1965.

2. Held, A.-J. La spécialisation en parodontologie. Parodontologie 19:73, 1965.

Cet éditorial a d'abord paru en anglais sous le titre "Equilibrium between general and specialty practice" en page 732 de notre numéro de novembre 1965. A cause de son grand intérêt et de l'actualité du sujet qu'il traite, nous avons cru opportun d'en reproduire ici une traduction française.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

1965 CDA Panel Presentation

To the Editor:

You deserve the plaudits of the entire profession for your publication of four outstanding views on the Hall Report (October 1965 Journal). However, I for one would have been much happier if you would have reversed the order in which they were presented.

Dr. Chamard, although — like Voltaire — I defend his right to his opinions, submitted a very narrow and selfish point of view. He is repeating the mistake being universally made by the healing professions—namely, that we must consider our pocket-books before the general welfare. He accuses members of the Royal Commission of stumping the country to sell an implausible bill of goods. In my view they were reasonably attempting to explain their report to the public. Dr. Chamard also accuses the Commission of insulting the profession because their analysis indicated a general inadequate level of dental health. If this is so, the profession has been the recipient of interminable insults, since every survey ever made has indicated that less than 25 per cent of the population is receiving even reasonable, let alone adequate, care. The Commission recommends that "we now take the necessary . . . decisions to make all the fruits of the health services available to all

our residents without hindrance of any kind." Let not the profession furnish the hindrances. Let us rather furnish aid so that the public may be protected. In this manner we will protect ourselves as well.

Dean Lussier, on the other hand, recognizes that the only reason why the profession has been given a monopoly in any province is to protect the public—not the dentist. He agrees with the objectives of the Commission but proposes reasonable alternatives to reach the same goal. He calls for increased productivity as well as preventive measures. He is definitely on the right track when he calls for more hygienists in public health units, instead of having them perform prophylaxes in luxury offices. Dr. Lussier admits that we may not have served the public adequately in the past and he calls upon the profession to accept the challenge of the future.

M. Marchand's article should have been presented first. He is not a dentist but he has the courage to warn the profession that Canadians are demanding adequate dental care. As a neutral observer he can foresee that if we do not co-operate we may be compelled to serve by decree and not by desire.

Dr. Strachan has brought to our attention that the Hall Commission was not composed of wild-eyed socialists. It consisted of a judge, two physicians, a dentist, an industrialist, an economist and a nurse. It was appointed by a Conservative government, and a Liberal cabinet received and promised to implement its report.

The Commission was charged to ensure that the best possible health services should be available to all. Dr. Strachan admits that our profession has directed its services toward supplying superlative care for the privileged few. Let us bend our energies toward the best care for the greatest number.

Isadore Wolch, DDS,
203 Edmonton St., Winnipeg, Man.

Agrees with New Zealand Editorial

To the Editor:

I receive and enjoy the *Journal of the Canadian Dental Association* and have over the years commented on various items.

The editorial on page 592 of your September issue, "New Zealand Revisited," is of particular interest to me. I remember when R. G. Ellis, Allen Gruebbel and J. T. Fulton visited New Zealand and made reports. Ellis and Gruebbel reported findings very similar to those of Baume.

Teaching people to value good dental health and practise preventive measures seems much more difficult than to provide temporary postponement of loss of teeth by filling holes. The total or eventual cost in

money and health are seldom discussed in the social programs that I read about.

Congratulations on an interesting and thought-provoking Journal.

My best wishes to your members and a cordial invitation to visit the Southern California State Dental Association meeting, May 2-4, 1966.

H. M. Kulstad, DDS,
President,
Southern California State Dental Association,
903 Crenshaw Blvd., Los Angeles, Calif.

Slowpoke Journal?

To the Editor:

I do not know if you are aware of an article called "Open Wide — It Won't Hurt a Bit" in the January 8, 1966 issue of the *Toronto Star Weekly*.

What puzzles me is that our national dental journal merely skims over (see September 1965 Journal) such an important event as the convention of the International Association for Dental Research held in Toronto last July. This was their 43rd meeting and only their second one in Canada. Surely among the 460 original papers presented there must have been something of great interest to every practising dentist in this country!

It certainly is disappointing to read about new advances in dentistry in a newspaper and not in our own journal.

Furthermore, have the public been correctly informed in the *Star Weekly* article? We should all remember that little news item which flashed through all the papers not long ago and claimed that someone had finally found the magic filling material we all have been waiting for. I refer to the supposedly adhesive material brought out by the Minnesota Mining and Manufacturing Company. Everybody else knew about this, except us dentists.

H. G. Jaeger, DDS,
10A George St. N., Galt, Ont.

We share Dr. Jaeger's concern over the dissemination of news to the public before the profession is fully acquainted with the details. But the CDA has no control over the manner in which authors, societies or other agencies release information to the communications media. Moreover, the growing volume of dental communications makes it quite impossible for a single professional journal to cover the field to the entire satisfaction of all the readers and in advance of the dissemination of information to the public. Furthermore, papers presented at IADR meetings belong to and are published by that association. IADR Abstracts, containing papers presented at the 1965 meeting, are available from the CDA library. A progress report on adhesive restorative materials was published in the February Journal. (Ed)

The Association

President Christie Visits West

Canadian Dental Association President P. S. Christie of Halifax visited dental societies in western Canada at the end of February and the beginning of March. He was accompanied by Secretary W. G. McIntosh of Toronto.

Their schedule included meetings at Sudbury February 19; Winnipeg February 21; Regina February 22; Saskatoon February 23; Edmonton February 24; Vegreville, Alberta, February 25; Victoria February 28; Vancouver March 1; Parksville, British Columbia, March 2; and Calgary March 3.

Canada and the Provinces

Health Items Influence Throne Speech

Five proposals concerning health, and possibly dentistry eventually, were contained in the Speech from the Throne outlining government proposals to the opening of Canada's 27th Parliament January 18. Grants for university operating expenses will be raised from \$2 to an average \$5 per capita of population, the Prime Minister announced later.

The Throne Speech expressed the government's "willingness to make fiscal contributions to provinces which provide programs of medical care meeting certain criteria." This is in accordance with the

government's belief that "public policy should be directed to ensuring that all Canadians can obtain needed health services, irrespective of their ability to pay." In addition, the government proposed legislation establishing the \$500 million health resources fund.

Scholarships and bursaries for students undertaking higher education are to be proposed. Legislation will also be introduced to establish a Science Council of Canada "in order to encourage further the progress of scientific research."

Dentistry at Expo 67

Important aspects of dentistry and oral health may be featured in several proposed health exhibits if present plans for Expo 67 are confirmed. A major centre of interest will be a \$750,000 theatre-in-the-round to be housed in Expo's 'Man and His Health' pavilion, Montreal officials have announced.

Expo 67, to open April 28, 1967, at Montreal, has as its theme 'Man and His World.' Three groups of theme buildings will contain an integrated presentation of man's achievements to date and what he may achieve in future. 'Man and His Health' is in one pavilion. Others include 'Man the Explorer,' 'Man the Producer,' 'Man the Provider' and 'Man in the Community.'

Assisting in Expo's health plans is a dental advisory committee appointed by the Canadian Dental Association. R. F. Harvey, Montreal periodontist, is chairman, with members Arto Demirjian, Marcel Archambault and L. E. Francis of Montreal, and C. A. E. McCabe of Ottawa.

Ontario Committee to Probe Health Professions

Education, licensure and discipline of all persons concerned with the provision of health services are to be thoroughly investigated in Ontario. This was revealed in the Throne Speech delivered January 25 in the Ontario Legislature. The Ontario government will establish a special committee of enquiry for this purpose.

Hospital Dentists Struggle for Recognition and Acceptance

"Hospital dentists throughout Ontario are waging a continuing struggle to gain the recognition and acceptance they feel is their due." So says a news leader in the January issue of *Canadian Hospital*, monthly publication of the Canadian Hospital Association.

The leader comments extensively on a two day seminar on hospital dentistry at Scarborough General Hospital, Scarborough, Ontario, late last year (also reported on pages 808-9 of the December 1965 *Journal of the Canadian Dental Association*).

Addressing the seminar delegates, F. A. Evis, medico-legal consultant for the Ontario Hospital Services Commission, acknowledged that it is a battle to get the dentist even mentioned in the Public Hospitals Act or hospital by-laws of Ontario. He deplored the fact that "in an accredited hospital . . . the dental department must meet full qualifications for accreditation, but these standards, though they must be attained, are not legally recognized." The full text of Dr. Evis' paper will be published in the April issue of the *Journal of the Canadian Dental Association* and *Journal of the Ontario Dental Association*.

Care of Aged Symposium in Toronto March 28

Dental care for the aged is the topic of a symposium slated for March 28 at the University of Toronto's Faculty of Dentistry. The panel participants include K. C. Charron, Ontario's associate deputy

Health League of Canada Seeks Support from Dentists

The Health League of Canada is asking mass participation by Canadians in the work of making Canada a healthy country. It has an immediate goal of one million members.

The League will write shortly to all Canadian dentists asking their individual co-operation in achieving this objective.

The Health League and Canadian dentists have already shown they can co-operate effectively, particularly in urging good dental hygiene, and fluoridation of water supplies.

The objectives of the Health League of Canada deserve the careful consideration of all dentists.

minister of health; Mr. Walter Lyons, social service director at Toronto's Jewish Home for the Aged; and New York dentist Sidney Silverman, a noted authority on gerodontology.

Admission to the symposium, to be held in the faculty auditorium beginning at 8 p.m., is open to all dentists.

For further information please contact Reuben Brown, 158 Spadina Avenue, Toronto, Ontario, telephone Em. 8-6267.

International Items

National Health Service Irks Britain's Dentists

Only one out of every 50 British dentists is satisfied with his lot under Britain's National Health Service. This fact emerges from a survey conducted by the British Dental Association in the spring of 1965. Replies were received from more than two-thirds of the 12,000 dentists who practise in the NHS. Results of the survey were published by the British Dental Association in a report titled *Dentists and the National Health Service*.

Money was the major source of complaint, but dissatisfaction was less concerned with the amount of income than with the speed at which dentists have to work to earn it.

An overwhelming majority also wanted change in a system that produces high earnings at the start but steeply falling income in the second half of their professional life.

Two-thirds of the dentists replying to the BDA questionnaire regarded the situation as sufficiently serious that they would resign willingly or reluctantly from the National Health Service.

Oral Biology Meetings in England and Scandinavia During May

The American Institute of Oral Biology has scheduled this year's spring meeting in three European capitals — London, Stockholm and Copenhagen.

Sessions in London will be held at Guy's Hospital medical and dental schools May 9-11. The Stockholm session at the Karolinska Institutet and Royal School of Dentistry follows May 17-18. Copenhagen's Royal Dental College is the site for the final session May 20-22.

Further program details are available from the Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

Postgraduate Courses Offered in New York

The First District Dental Society will offer a variety of short postgraduate refresher courses during the spring months. Further information may be obtained from J. J. Adelson, First District Dental Society, Statler Hilton Hotel, 7th Avenue and West 33rd Street, New York, New York 10001, USA.

Tel-Aviv University Starts Dental Division

The Faculty of Continuing Medical Education at Tel-Aviv University, Israel, has opened a new dental division. This new educational centre is ideally located to serve the needs of about half of Israel's

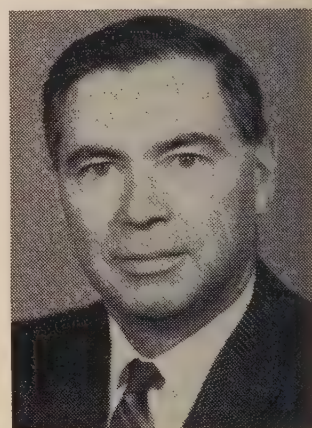
qualified dentists who live in the area of Greater Tel-Aviv. The new dental division will help these practitioners keep abreast of developments in dental sciences.

The division is also expected to help upgrade and unify practice standards of Israel's dentists, many of whom come from different countries with widely varying educational backgrounds and standards.

Dental Organizations

Dr. Glenn Installed as President of Manitoba Assn.

R. D. Glenn, Winnipeg, was installed as president of the Manitoba Dental Association at the MDA annual meeting and midwinter clinic January 21-22.



R. D. Glenn

A 1950 graduate of the University of Toronto, Dr. Glenn has served with the Royal Canadian Dental Corps and is currently on the part-time teaching staff at the University of Manitoba. He practised in rural Manitoba before establishing his present practice in Winnipeg.

Dr. Parfitt Addresses Victoria Dentists

G. J. Parfitt, professor of oral medicine at the University of British Columbia, was the guest speaker at the January meeting of the Victoria and District Den-

tal Society. Dr. Parfitt described common causes of gingivitis.

Canadian Dental Schools

Curriculum Reform Plus Internship Held Necessary for Future Dental Education

Canada needs dental clinics in teaching hospitals or actual dental hospitals where young dental graduates could serve a salaried internship to acquire the practice experience in technical skills they must now obtain in a dental school in order to qualify for licensure. This recommendation emerges from a report on dental education in Canada recently released for the Royal Commission on Health Services.

The study, one of three produced for the Hall Commission, is by K. J. Paynter, chairman of the CDA Council on Research and professor at Toronto's Faculty of Dentistry.

Dr. Paynter suggests that implementation of this proposal would release badly needed time in overcrowded dental school curricula for more adequate instruction in basic sciences, clinical teaching and orientation to the society in which dental graduates will practise.

"Dental clinics in teaching hospitals could provide a place for all dental auxiliaries to be trained outside the university," Dr. Paynter points out. "This would permit formal courses to be established for dental assistants and technicians under the aegis of the hospital, with a resultant help to the dental profession and relief to the dental schools."

Thus, he adds, "dental school staffs could still give instruction to auxiliaries in their general background courses such as biology, but clinical performance and supervision would be taken outside the university. This would also permit dental interns an opportunity not now available to work with auxiliaries and to learn to supervise and co-ordinate work."

In suggesting this pattern for the future, Dr. Paynter notes that internships need not extend the time for licensure by a full calendar year. If the two senior

years in dental school were not separated by a long vacation and if the internship began immediately after completion of the fourth dental year, the time extension would be in the order of six months and the end product would be a far better trained dentist.

Dr. Paynter also recommends that the training of clinical specialists should primarily occur in hospitals.

School Capacity Increases 75 Per Cent in Decade

The capacity of Canadian dental schools has increased by over 75 per cent during the past 10 years. This fact emerged from a report by the CDA Bureau of Economic Research considered by the CDA Council on Education last January 27-28.

Further growth is in the offing and this is revealed in the plans of the following schools:

The University of Western Ontario will admit an initial class of eight undergraduate dental students this September;

The Université de Montréal will increase its class size from 78 to 85;

The University of British Columbia's class capacity will be raised from eight to 20;

The proposed new dental school at the University of Saskatchewan may accept an initial class of 30-35 undergraduate dental students by 1967;

Accommodation for an additional 15 undergraduate dental students and 18 dental hygiene students will become available when the University of Alberta's expansion program is completed by 1968;

Expansion plans for Dalhousie University's dental faculty have been approved in principle. These could provide accommodation for an additional 36 undergraduate dental students by 1969 as well as space for graduate, postgraduate and research programs;

Expansion at the University of Manitoba will raise the capacity of its classes to 50 undergraduate dental students (up from 33) and 25 dental hygiene students (up from 16).

McGill University also hopes to increase

Erratum: Dr. Jacobs

An item in the December Journal concerning the nomination of R. M. Jacobs as head of the department of orthodontics at the University of British Columbia indicated that Dr. Jacobs was appointed with the rank of assistant professor. Dr. Jacobs actually received the rank of associate professor.

the facilities of its dental school although no target date has been announced so far.

The total number of undergraduate dental students enrolled in Canadian dental schools now stands at 1,289.

The average cost of the four year dental course is \$7,548 (\$4,334 for university expenses, \$3,214 for room and board). The average cost of the two year dental hygiene course is \$2,391 (\$1,036 for university expenses, \$1,355 for room and board).

Quebec College Aids McGill and Montréal Universities

The College of Dental Surgeons of the Province of Quebec has donated \$3,500 in aid of dental research at McGill University and the Université de Montréal. The money will be used to buy photomicroscopy apparatus for McGill's dental faculty. The research department at Montréal's faculty will use its grant to purchase equipment for pathological preparations.

Royal Canadian Dental Corps

Brig. Baird at Emergency Health Services Meet

Brig. K. M. Baird, Director General of Dental Services, attended a meeting of the Emergency Health Services Advisory Committee in Ottawa January 24. EHSAC

is sponsored by the Department of National Health and Welfare.

Four Officers Take Professional Training

Four dental officers took professional training courses during the early part of 1966. They are: Maj. **W. R. Collier**, headquarters, Camp Shilo, Manitoba, and Maj. **E. W. Gazo**, Ottawa, who attended an oral surgery course at the US Naval Dental School, Bethesda, Maryland, January 10-14 and January 17 to March 4 respectively;

Maj. **G. T. Crossman**, RCAF Station, Greenwood, Nova Scotia, who attended a course in complete prosthodontics at the US Naval Dental School from January 31 to February 4; and

Maj. **J. J. Y. Turcotte**, National Defence Medical Centre, Ottawa, who attended an oral surgery course at Ent Air Force Base, Colorado Springs, Colorado, January 17-28.

Regional Conventions

BC Dentists Plan Golden Anniversary Meet June 2-4

The golden anniversary convention of the British Columbia Dental Association will be held at the new Inn of the North in Prince George June 2-4.

Featured essayists include H. M. Worth, noted Vancouver radiologist, and G. D. Stibbs, head of the Department of Operative Dentistry at the University of Washington.

Economics

Dental Insurance Users Up

More than 2.5 million Americans are now covered by some type of dental insurance,

and the number probably will grow to 15 million in the next five years. These facts emerged from the recent annual session of the American Dental Association in Las Vegas.

Four types of prepaid dental care are currently available in the United States:

The not-for-profit dental service corporation, sponsored by the state dental society "to provide group programs on a service basis or as desired by the dentists who participate;"

The commercial insurance plan under which private corporations use their funds to underwrite the various risks of dental insurance;

Closed panels, in which a group of dentists provides services for a specific group of patients; and

Self-insured programs in which a group seeking care uses its funds and membership to contract for care.

Alberta Assn. Proposes Dental Scheme to Provincial Government

A government subsidized plan of dental care for certain children up to eight years old has been proposed by the Alberta Dental Association. The recommendations presented to provincial government officials December 22, 1965 envisage an indemnity form of prepaid dental co-insurance. The plan would initially cover children of families with marginal incomes. Government subsidization would be on a sliding scale ranging from 20 to 80 per cent in accordance with need.

Coverage could escalate to additional age groups when actuarial and treatment experience warrants this and as recognized preventive measures are adopted. As care changes from active treatment to maintenance for each age level, additional groups could be added, the proposal stated.

The plan would be administered by the Alberta Dental Association's dental service corporation which has been authorized as a legal carrier under Alberta's Societies Act.

Dentists would be paid by patients on a 'usual fee' basis in accordance with standard practice. Policy holders would receive indemnities according to a yet-to-be cal-

culated schedule of benefits. Any differences between a dentist's fee and the indemnity therefor would be the patient's own responsibility (co-insurance).

Commercial Carriers Excluded from New Ontario Medicare Proposals

Amendments to Ontario's Medical Services Insurance Act, passed last year and scheduled to start next July 1, will make standard medical coverage for all individuals available from the government insurance plan. Government medicare will cost \$60 a year for single persons, \$120 for childless couples and \$150 for families with children. It will exclude private carriers, but group coverage will be left with commercial and non-profit carriers.

However, extension of government insurance to all non-subsidized individuals, at a set maximum premium, opens the door to later incorporation of group coverage also, thereby likely making the Ontario plan eligible for federal subsidy under the cost sharing plan announced by Ottawa last summer.

Premiums for about 1.8 million Ontario citizens who earn a low income will be subsidized. The government will also take over the Ontario Medical Welfare Plan, now operated in co-operation with the Ontario Medical Association. This plan provides medical services for 300,000 persons in receipt of public assistance.

Under the proposed amendment, the Ontario government will pay 90 per cent of standard fees scheduled by the Ontario Medical Association. This is the proportion now paid to physicians by the medical profession's own non-profit plan.

The government estimates its annual subsidization and administration cost at \$70 million.

Fluoridation

Recent Fluoridation Losses

Voters in several recent plebiscites rejected fluoridation of their water supplies.

In Ontario, Cobourg, Lindsay, Peter-

borough, Port Colborne and Fort William turned down fluoridation by substantial majorities. In Port Arthur, voters rejected the measure by only 277 votes; a 1963 plebiscite resulted in rejection by over 2,200 votes.

Sherwood Park, Alberta, voters voted an overwhelming 85 per cent in favour of fluoridation.

At Oak Bay, near Victoria, British Columbia, the vote was 59.646 per cent in favour of fluoridation, but provincial law requires a majority of 60 per cent to institute fluoridation. In 1959, the Oak Bay vote was only 42 per cent in favour. In other BC votes, fluoridation failed to be approved at Powell River, Kinnaird, Pouce Coupe, and Dawson Creek.

At Kingston, Ontario, fluoridation was expected to start by the end of January. In December, city council passed a by-law authorizing fluoridation.

A Vancouver dentist, D. L. McNair, recently urged his colleagues to display signs in reception rooms, distribute literature, and tell patients personally of the benefits of fluoridation.

Public Health

DPH Again a Specialty in Quebec

The Quebec Provincial Dental Board (the statutory arm of the College of Dental Surgeons of the Province of Quebec) will again recognize dental public health as a specialty. The decision was made on December 9, 1965.

Dental public health had previously been recognized as a specialty in Quebec but this recognition was withdrawn on February 21, 1964.

Dentist Heads New York City Health Department

Arthur Bushel has been named first deputy commissioner of the Department of Health of New York City. Announcement of the appointment was made by Mayor J. V. Lindsay. Dr. Bushel will also

serve as acting commissioner of the health department.

From 1947 to 1955 Dr. Bushel was assistant director of the New York State health department's Bureau of Dental Health. In 1955 he became director of the New York City Bureau of Dentistry. In 1962 he was named special assistant commissioner of the city's health department, and in 1965 became assistant commissioner for professional staff services.

Awards and Honours

The Royal College of Dental Surgeons of Ontario has conferred a life membership on one of its former presidents, **R. O. Winn** of Kitchener. The ceremonial presentation, marking Dr. Winn's 50th year in dental practice, was made at the January 19 meeting of the Inter-County Dental Society in Kitchener. Dr. Winn was president of the Inter-County Dental Society in 1921 and president of the RCDS from 1951 to 1953.



At a special ceremony on January 19 R. O. Winn, Kitchener (l.) received a life membership in the Royal College of Dental Surgeons of Ontario.

The Université de Montréal recently awarded an honorary doctor of laws degree to **Paul Geoffrion**, former dean of the university's Faculty of Dental Surgery.

L. T. Allen, who has practised in Lethbridge for 53 years, was awarded a fellowship in the American College of Dentists in November 1965.

Deaths

To avoid publication delays, abbreviated death notices will henceforth be published in this portion of the Journal's news columns as soon as the information is received by the editorial department. These notices will indicate the name and age of the

deceased, his place of residence, his dental school and year of graduation, and the date of his death. Appreciations of notable persons will in future be published in the In Memoriam section as space permits.

Bray, G. H. 88. Morden, Manitoba. Royal College of Dental Surgeons of Ontario, 1905. 24-1-66.

Clayton, C. J. 73. Victoria. Royal College of Dental Surgeons of Ontario, 1924. 23-12-65.

Faulkner, A. W. 81. Halifax. Dalhousie University, 1912. Honorary member CDA. 25-1-66.

Hoskin, H. A. 84. Cold Springs, Ontario. Royal College of Dental Surgeons of

Ontario, 1904. Associate member CDA. 6-1-66.

Mageau, Omer. 61. Montréal. Université de Montréal, 1929. 10-12-65.

Ratelle, Leo. 55. Montréal. Université de Montréal, 1936. 5-1-66.

Rudell, M. J. 78. Guelph, Ontario. Royal College of Dental Surgeons of Ontario, 1912. 30-1-66.

Walsh, A. L. 74. Montreal. McGill University, 1920. 21-12-65.

CDA Library Trust Fund • The circulation of books and periodicals by the Canadian Dental Association's Library provides a valuable service to Association members. Increased circulation and the purchase of new texts make greater demands on the Association's library trust fund. All donations to the fund are therefore gratefully received. Donors are furnished receipts which entitle them to income tax deduction.

Congrès national

Réunion d'endodontie

L'Académie canadienne d'endodontie tiendra sa session scientifique annuelle à l'occasion du congrès national de l'A.D.C., le 11 juin, à Halifax. Le programme prévu comporte:

- 8h.30 Inscription. Les frais d'inscription au programme scientifique sont de \$10.00 pour les personnes non-membres.
- 9h.15 R. L. de C. H. Saunders, Halifax: Conférence.
- 10h.30 Panel présenté par la Société d'endodontie de Montréal: M. B. Archambault: Les cas d'urgence en endodontie et la sélection des cas;
Benjamin Sedlezsky: Instrumentation pour l'obturation des canaux radiculaires;
W. B. Donohue: Techniques d'endodontie chirurgicale;
H. M. Robichaud: Restauration des dents dévitalisées.
- 1h.00 R. L. de C. H. Saunders, Halifax: Conférence.
- 2h.15 Séance d'affaires.

Pour tous renseignements complémentaires sur le programme ou l'inscription, s'adresser à I. A. Arshawsky, 566 Yonge Street, Toronto, Ontario.

Dîner du Collège international le 11 juin

Le Collège international des dentistes prévoit un dîner-causerie le 11 juin à Halifax. Le dîner sera présidé par J. P. McGuigan, 1584 rue Robie, Halifax.

L'Association

Décès de A. L. Walsh, ancien doyen de McGill et ancien président de l'ADC

A. L. Walsh, qui fut doyen de l'Université McGill et président de l'ADC est

décédé à Montréal le 21 décembre 1965, à l'âge de 74 ans.

Le docteur Walsh qui, en 1924 avait reçu la charge de l'instruction clinique à McGill, devint en 1927 vice-doyen et en 1940 doyen de la faculté. En cette qualité, il s'employa à établir des cours accélérés pour fournir davantage de dentistes aux forces armées canadiennes pendant la deuxième guerre mondiale. Il quitta ce poste en 1948 lorsque l'augmentation du nombre des étudiants rendit nécessaire la nomination d'un doyen permanent.

Né à Kingston, en Ontario, il fit ses premières études à Valleyfield, P. Québec, et gradua à la Faculté de chirurgie dentaire de l'Université McGill en 1920.

Président de l'ADC en 1942-43, il contribua à la création du Conseil d'enseignement de l'ADC et il en devint ensuite le premier président. Le Dr Walsh fut aussi président de l'Association américaine des écoles dentaires en 1941-42. Il reçut du roi George VI la Coronation Medal en 1937 et l'Université de Montréal lui conféra le titre de Docteur en chirurgie dentaire honoris causa. Il était Fellow de l'American College of Dentists, de l'International College of Dentists et du Chapter of the professional fraternity, Omicron Kappa Upsilon, de l'Université Harvard.

Canada

L'Art dentaire à l'Expo 67

Les fonctionnaires de l'Expo 67 ont annoncé que si les projets actuels sont maintenus, l'Art dentaire sera présenté parmi les attractions groupées dans le pavillon 'L'Homme et la Santé.'

On signale aussi que l'Association des compagnies canadiennes d'assurance-vie accorderait \$750,000 pour commanditer un théâtre circulaire dans ce pavillon.

Le thème de l'Expo 67, qui ouvrira ses portes le 28 avril 1967, est 'Terre des Hommes.' Trois groupes de bâtiments thématiques offriront une présentation complète des réalisations que l'homme a faites jusqu'à nos jours, et de celles qu'il pourrait accomplir dans l'avenir. 'L'homme et la santé' est le thème d'un pavillon; les autres comprennent 'L'homme interroge l'univers', 'L'homme à l'œuvre', 'L'homme et l'alimentation', 'L'homme dans la cité' et 'Le génie créateur de l'homme.'

Un comité dentaire consultatif, désigné par l'ADC prête son concours aux projets de l'Expo sur le thème de la santé. Le président en est R. F. Harvey, périodontiste de Montréal, et les membres Arto Demerjian, Marcel Archambault et L. E. Francis de Montréal, ainsi que C. A. E. McCabe d'Ottawa.

Pourparlers interprovinciaux sur la transférabilité de l'assurance médicale

Les ministres provinciaux de la Santé ont émis une déclaration conjointe à l'issue de la conférence du 22 novembre à Winnipeg, où ils ont débattu la protection de base que doit offrir le projet fédéral de plan d'assurance médicale.

La déclaration établit que le but de la conférence était de jeter les bases de la transférabilité des plans d'assurance santé, pour permettre aux Canadiens se déplaçant d'une province à une autre de conserver sans interruption la même protection de base.

La déclaration ajoute que les ministres présents à la conférence ont souligné que cette discussion n'engageait pas leurs gouvernements à participer au plan national.

La Cour de l'Echiquier étudie le cas d'une corporation d'exercice médical

La Cour de l'Echiquier du Canada a récemment étudié le cas d'un médecin qui

exercerait sa profession pour le compte d'une corporation.

D'après le numéro du 17 novembre 1965 de la revue *Canada Tax Service*, la cour a statué que l'exercice de la médecine ne peut être le fait que d'une personne réelle; elle déclare que l'appelant était "empêché en fait et en droit, et par mesure d'intérêt public, d'exercer la médecine . . . en qualité d'agent d'une corporation."

La cour considère par conséquent que les sommes d'argent qui entrent en possession de la corporation dans ces circonstances, lui sont versées à titre de cessionnaire et représentent des honoraires déjà gagnés par son 'employé.'

Chronique internationale

Programme du congrès de la FDI de Tel-Aviv

Le programme de la 54ème session de la FDI, qui doit se tenir du 10 au 17 juillet au Tel Aviv Hilton, à Tel-Aviv, en Israël, vient d'être précisé.

Les séances scientifiques des lundi 11, mardi 12, jeudi 14 et vendredi 15 juillet seront consacrées aux orientations nouvelles en dentisterie, à des considérations biologiques en rapport avec la maladie périodentaire, à la prévention en clinique, ainsi qu'à la biologie de la dent et ses réactions. De plus, une exposition commerciale aura lieu au Tel Aviv Hilton.

Conformément à une décision approuvée lors de la session annuelle de Vienne l'année dernière, la participation à la session de Tel-Aviv sera réservée aux membres de la FDI et à leur famille. Il s'ensuit qu'un dentiste qui n'est pas membre devra le devenir lorsqu'il déposera sa demande de participation à la session annuelle de Tel-Aviv. Il devra s'adresser au trésorier national de la FDI au Canada (W. G. McIntosh, 234 St. George Street, Toronto 5). Les dentistes non-membres qui se présenteraient à Tel-Aviv sans préavis devront payer la cotisation de membre de \$16. Leurs demandes seront ensuite adressées au trésorier national canadien

pour approbation. Le Conseil de la FDI a toutefois été prié de déroger à cette restriction en faveur des personnes qui représentent officiellement un service gouvernemental ou un organisme international.

Un nombre limité de chambres a été retenu aux hôtels de Tel-Aviv et de Herzliya. Elles seront attribuées par le Comité d'organisation suivant l'ordre de réception des demandes dûment remplies. On requiert un versement de 75 livres israéliennes pour assurer les réservations.

Adressez vos demandes de renseignements et de fiches d'inscription à Isaac Seifert, secrétaire général, case postale 4115, Tel-Aviv, Israël.

L'ADA occupe un nouveau siège social

A la fin de l'année dernière, le personnel de l'ADA a emménagé dans un immeuble de 23 étages, sis au 211 East Chicago Avenue, à Chicago, qui sera son nouveau siège social. L'ADA utilise environ la moitié du bâtiment, le reste étant cédé à des locataires parmi lesquels se trouvent plusieurs organismes dentaires, ainsi que des firmes dentaires. L'ADA occupe les étages 4 et 5, et les étages 18 à 22. Le nouveau siège social fut inauguré solennellement le 27 février.

Installation du président de l'ADA

M. K. Hine, d'Indianapolis, a reçu les fonctions de président au cours de la 106ème session annuelle de l'American Dental Association qui s'est tenue du 8 au 11 novembre 1965 à Las Vegas. W. A. Garrett, d'Atlanta, a été choisi président-élu. Plus de 19,000 délégués participaient à la session.

L'Assemblée des Délégués de l'ADA a approuvé des règlements et les conditions d'éligibilité aux plans de l'Association nationale de service dentaire. La création des plans de l'ANSO avait déjà été approuvée lors de la session de 1964. L'Assemblée a aussi adopté une résolution voulant que, "au cours des futures négocia-

tions avec les agences publiques ou privées en rapport avec les plans d'assurance dentaire, la politique de l'association consiste à donner la priorité à la question du remboursement des soins professionnels sur la base des honoraires usuels et coutumiers ou d'une table d'indemnités."

L'Assemblée des Délégués a pris d'autres initiatives:

Elle a recommandé aux sociétés locales de rechercher une législation qui rende obligatoire la fluoration;

Elle a chargé les agences de l'ADA de mettre au point un plan d'assurance dentaire national pour la jeunesse;

Enfin, elle a fait de nouveau appel aux sociétés des divers états et aux sociétés locales pour qu'elles suppriment toute discrimination qui pourrait exister dans l'admissibilité des nouveaux membres.

L'ADA étudie un programme national de soins pour les enfants

L'American Dental Association a posé les premiers jalons d'un programme de soins dentaires pour les enfants, aux Etats-Unis. Le Conseil pour la santé dentaire de l'ADA, réuni à Chicago les 9 et 10 décembre 1965, a passé en revue diverses suggestions concernant un programme d'assurance pour les enfants, conformément à une résolution adoptée lors de la session annuelle de l'ADA à Las Vegas, résolution qui demandait l'élaboration "d'un programme national pour les enfants, en particulier les nécessiteux et les déshérités, afin de rendre les bienfaits des services dentaires modernes accessibles à tous les enfants du pays."

Les principes suivants serviraient de base au programme:

Le libre choix du dentiste et du patient;

La disponibilité de soins dentaires de base pour tous, grâce à un programme progressif;

Un système de subvention aux états pour défrayer le coût des soins aux enfants indigents;

Un système de contribution volontaire préalable permettant la participation des enfants de familles plus fortunées;

Enfin, une campagne nationale d'éducation en hygiène dentaire.

L'ADA offre des tests pour les dentistes étrangers

Le Conseil pour l'éducation dentaire de l'ADA offrira un programme de tests pour les dentistes étrangers qui souhaitent poursuivre des études universitaires ou post-universitaires aux Etats-Unis.

Ce programme de tests, appliqué à titre d'essai en 1964-65 aux dentistes cubains qui demandaient à être admis dans les écoles dentaires américaines, sera maintenant étendu à tous les dentistes étrangers désireux de poursuivre leur formation aux Etats-Unis.

L'ADA approuve trois nouvelles brosses à dents électriques

Le Conseil de thérapeutique dentaire de l'ADA a approuvé trois nouvelles brosses à dents électriques qu'il a qualifiées "d'instruments efficaces de propreté." Il s'agit de la brosse à dents hygiénique sans cordon Sunbeam, de la brosse à dents multi-action Westinghouse et de la brosse à dents automatique Tek. La brosse à dents automatique Tek est distribuée par la Division Tek-Hughes de la compagnie Johnson and Johnson.

Les trois brosses ont été classées dans le groupe B par le Conseil de thérapeutique dentaire de l'ADA qui a autorisé l'emploi de la déclaration suivante: "X (nom de la brosse) a été provisoirement agréée comme instrument efficace de propreté qui s'inscrit dans le cadre de bonne hygiène buccale devant accompagner les soins professionnels réguliers de la bouche." On range dans le groupe B les produits qui, à cause de leur nouveauté relative, n'ont pas encore été suffisamment éprouvés pour être classés parmi les remèdes dentaires approuvés, mais dont l'utilité et la sécurité sont hors de doute.

Deux brosses électriques, fabriquées par la compagnie General Electric et par E. R. Squibb et Cie, avaient déjà reçu l'approbation de l'ADA.

Organismes dentaires

Recherches sur l'usage des médicaments en dentisterie

Tous les dentistes canadiens bénéficieront peut-être un jour des études qui se déroulent actuellement en Ontario sur la thérapeutique médicamenteuse. Ces recherches, commencées en avril dernier, ont pour but d'examiner l'usage des médicaments et de la prémédication en pédodontie, en chirurgie buccale et en anesthésie, en périodontie et en dentisterie opératoire. Elles se proposent aussi de mieux étudier la compatibilité de différents médicaments, l'examen physique minimum nécessaire avant l'administration de médicaments, et les normes d'instruction sous-graduée en pharmacologie thérapeutique.

Les recherches, dirigées par le Collège royal des chirurgiens dentistes de l'Ontario, sont effectuées par un comité interdisciplinaire dans lequel se trouvent des dentistes omnipraticiens, des périodontistes, des pédodontistes, des chirurgiens, des représentants de l'Institute of Child Study de l'Université de Toronto, de la Faculté de pharmacie, de la Faculté de chirurgie dentaire, de la Faculté de médecine (Département de pharmacologie), du CRCD, et du Département d'anesthésie du Hospital for Sick Children de Toronto.

La tâche essentielle de ce comité sera de compiler un manuel sur l'usage thérapeutique des médicaments en chirurgie dentaire. Le président en est K. W. Davey de Toronto, et le secrétaire E. G. Sonley de Willowdale, Ontario.

Rencontre des représentants des Collèges médical et dentaire de l'Ontario

Les officiers du Collège royal des chirurgiens dentistes de l'Ontario ont rencontré leurs collègues du Collège des médecins et chirurgiens de l'Ontario le 20 octobre 1965. On pense qu'il s'agit de la première rencontre entre les deux Collèges. L'objet de la conférence était de rechercher une attitude commune sur les problèmes touchant aux services professionnels qui

relèvent de la compétence de chaque collège. Les représentants ont discuté les questions suivantes:

Le concept de science de la santé qui prend forme dans des écoles de médecine et de chirurgie dentaire;

La spécialisation en dentisterie, y compris les rôles du CRCDD et du Collège royal des chirurgiens dentistes du Canada;

Les privilèges accordés au personnel dentaire dans les hôpitaux enseignants;

L'exclusion des dentistes par la loi Medicare de l'Ontario. La section 1 (f) du projet de loi 163 stipule qu'une personne habitant la province est couverte pour le traitement de fractures de la mâchoire, d'infections d'origine dentaire, le traitement de tumeurs buccales et les biopsies, si elle est prise en charge par un médecin, mais non si elle est suivie par un dentiste. Pour résoudre ce problème, M. Wilson, président du CMCO a demandé aux représentants du CRCDD de dresser (1) une liste des services chirurgicaux ordinairement rendus par le dentiste et (2) une liste des autres soins nécessitant une hospitalisation, et que le dentiste pourrait donner avec l'accord du comité médical consultatif de l'hôpital, sur la recommandation du chef du personnel chirurgical.

Au terme de leur réunion, les officiers des deux collèges ont adopté une résolution conjointe qui a été envoyée au Ministre de la Santé de l'Ontario.

La Saskatchewan examine des dentistes britanniques

En décembre 1964, le gouvernement de la Saskatchewan invitait par des annonces les dentistes anglais à venir pratiquer dans la province et leur offrait en prime les dépenses de transport ainsi qu'une aide financière pour établir une clientèle (voir le Journal de novembre 1965, page 743). Près de 100 dentistes anglais se sont montrés intéressés.

A la suite d'un accord intervenu entre le Collège des chirurgiens dentistes de la Saskatchewan et le gouvernement de la Saskatchewan, le Bureau provincial d'examens a fait subir en Grande-Bretagne des examens écrits et cliniques aux dentistes intéressés.

En juillet 1965, 15 candidats, détenant tous des diplômes britanniques de chirurgie dentaire, se sont présentés à l'examen écrit. Sur les 15, huit ont été reçus. Les examinateurs ont alors été envoyés à Londres aux frais du gouvernement pour examiner les huit candidats sur les matières cliniques. Sur les cinq candidats ayant subi avec succès cet examen clinique, trois ont déjà adressé une demande au Collège de la Saskatchewan.

Facultés dentaires canadiennes

L'Université McGill de Montréal offrira trois cours de perfectionnement au printemps 1966

Un cours de couronnes et ponts s'adressant au praticien général aura lieu du 29 avril au 1er mai.

Le cours intitulé chirurgie buccale aura lieu du 16 au 18 mai.

Le 3ème cours portant sur les soins à donner aux enfants aura lieu du 19 au 21 mai.

Dans les trois cas, l'inscription sera limitée. Pour renseignements additionnels, bien vouloir écrire au bureau du doyen, Faculty of Dentistry, McGill University, Montréal 2, P. Québec.

Corps dentaire royal canadien

Un groupe d'étude se réunit en Europe

Des officiers du Corps dentaire royal canadien appartenant à la 7ème Division Aérienne du C.A.R.C. en Europe se sont réunis en groupe d'étude aux Quartiers Généraux de la 35ème Unité dentaire de campagne, à Metz, France, vers la fin d'octobre 1965.

Deux mutations

Le major J. J. N. Wright a été muté du Walter Reed Army Medical Centre de

Washington, au Groupe d'instruction de l'Ecole du Corps dentaire royal canadien, au Camp Borden, Ontario.

Le capitaine J. B. Grise est passé du 4ème Dépôt de Personnel à Montréal, aux Quartiers Généraux du Camp Valcartier, Québec.

Economie

L'orthodontie s'ajoute à l'assistance publique albertaine

Le gouvernement de l'Alberta a mis en force, pour les personnes bénéficiant de l'assistance publique, un service d'orthodontie dont l'administration a été confiée à l'Association dentaire de l'Alberta.

L'Association a désigné un comité de sélection, composé d'un orthodontiste, d'un praticien, du secrétaire de l'Association et d'un représentant du gouvernement. Pour les patients d'assistance publique, les orthodontistes doivent soumettre au comité l'histoire de cas, le diagnostic, le plan de traitement, le pronostic, l'évaluation des honoraires, accompagnés des modèles, radiographies, et tracés céphalométriques du cas. Le comité examine chaque cas et décide de l'opportunité du traitement et de l'évaluation des honoraires. Pour les services mineurs, tels que les appareils de maintiens dont le coût est inférieur à \$100.00, l'autorisation est donnée par le seul secrétaire.

L'orthodontiste reçoit un chèque trimestriel, et ses honoraires sont payés en entier. L'Association dentaire de l'Alberta reçoit 5 pour cent du montant total pour administrer le programme dont le coût annuel est estimé à \$15,000.00.

Sur cinq enfants admissibles, deux utilisent le programme d'assistance de l'Alberta

Quarante pour cent des 20,140 enfants couverts par l'Alberta Pensioners' Treatment Service prennent part au programme dentaire. Les dernières statistiques montrent que le coût moyen par enfant traité

est de \$24.71 par an. Le coût par enfant admissible est de \$9.85.

On a fait en moyenne sur chaque enfant de moins de 10 ans deux à trois obturations d'amalgame et une extraction en 1964. Environ un enfant sur trois seulement a bénéficié d'une prophylaxie ou d'une application topique de fluor.

Les 32,541 retraités admissibles au programme dentaire sont couverts au coût moyen de \$1.97 par personne admissible. Le coût moyen pour les autres 12,768 adultes couverts est de \$7.87 par personne admissible.

Deux provinces suggèrent que l'on étende les responsabilités des hygiénistes

La Nouvelle-Ecosse et l'Ontario viennent de suggérer que l'on étende les responsabilités des hygiénistes dentaires.

Un comité de l'Association dentaire de Nouvelle-Ecosse (NSDA) recommande que les hygiénistes dentaires soient autorisées à prendre les impressions pour des modèles d'étude, à choisir et à ajuster les couronnes temporaires, à appliquer la digue et à polir les restaurations. Les membres de la NSDA ont approuvé les recommandations du comité à leur assemblée générale annuelle.

L'Ontario souhaite aussi voir les hygiénistes prendre des responsabilités plus grandes. A sa réunion de novembre 1965, le bureau de direction du Collège royal des chirurgiens dentistes de l'Ontario a accepté que les hygiénistes soient autorisées à rassembler toutes les données anthropométriques dont l'orthodontiste a besoin pour faire son diagnostic.

On mentionne de façon spécifique les photographies intra et extra-orales, les mensurations corporelles, les radiographies céphalométriques, les radiographies intra-orales, les radiographies du carpe, les modèles d'étude et les mensurations crâniennes.

Les hygiénistes pourront aussi placer les élastiques de séparation, faire le choix des bandes sur modèles, faire les démonstrations d'hygiène buccale, les analyses de diètes et l'accumulation des données nécessaires pour compléter le dossier d'un cas fini.

Le Bureau de direction a aussi autorisé les hygiénistes à polir les obturations. Elles pourront donc employer des disques, des pierres, des fraises et des abrasifs pour polir les obturations nouvelles ou anciennes, mais elles ne seront pas autorisées à faire la morphologie des nouvelles obturations ou à corriger les suroclusions sur les obturations, qu'elles soient nouvelles ou anciennes.

Révision des échelles d'honoraires dans quatre provinces

Quatre provinces ont annoncé la révision ou la modification de leur échelle d'honoraires.

Vers la fin de l'année dernière, le Collège des chirurgiens dentistes de la province de Québec a approuvé une nouvelle échelle d'honoraires. On y retrouve la terminologie et la plupart des principes du système de valeur relative établie par l'ADC.

Le Comité économique de l'Association dentaire de la Colombie britannique a commencé la révision de son échelle d'honoraires. La nouvelle échelle s'appuie sur le système de valeur relative de l'ADC.

Le Comité économique de l'Association dentaire de l'Alberta est en train d'achever la modification de son échelle d'honoraires, encore une fois sur les bases du système de valeur relative de l'ADC.

L'Association dentaire de l'Ontario a également fait paraître une nouvelle échelle d'honoraires en 1965. Elle contient une liste des services de diagnostic, de prévention et de traitements beaucoup plus complète que les échelles précédentes. La nouvelle échelle de l'ADO prend pour modèle la liste de référence des services dentaires de l'ADC.

Les corporations canadiennes de service dentaire n'annoncent aucun progrès

L'état actuel des corporations de service dentaire au Canada révèle que la Nouvelle-Ecosse, le Québec, l'Alberta et la Colombie britannique ont établi des corporations, mais que seules les provinces d'Alberta et de Colombie britannique

prévoient constituer un groupe pilote dans un proche avenir.

Augmentation des paiements pour les patients de l'assistance publique de l'Ontario

Les paiements faits aux dentistes qui soignent des enfants et des parents bénéficiaires d'allocations sociales ont été portés l'année dernière à 75 pour cent du tarif des honoraires de l'Association dentaire de l'Ontario. Le taux précédent était de 66 2/3 pour cent.

Le Collège royal des chirurgiens dentistes de l'Ontario demande au Ministère du bien-être social un octroi supplémentaire afin de pouvoir payer l'honoraire total.

Fluoruration

La bataille de la fluoruration

Plus de quatre millions et demi de Canadiens, soit près de 24 pour cent de la population, reçoivent actuellement de l'eau fluorée. Ce nombre comprend environ trois millions d'Ontariens qui sont desservis par des systèmes d'eau fluorée.

Les derniers chiffres pour les Etats-Unis font apparaître quelque 2,900 agglomérations et environ 58 millions de personnes dans les zones fluorées. Parmi les grandes villes, Detroit vient récemment d'adopter la fluoruration, par référendum.

En Alberta, un comité spécial de la législature a recommandé que la majorité des deux-tiers requise actuellement dans les référendums sur la fluoruration soit abaissée à 51 pour cent des voix.

Le Ministre de la Défense décide en faveur de la fluoruration

La cause de la fluoruration vient de recevoir au Canada un nouvel allié: le ministère de la Défense nationale. Dans une lettre datée du 15 décembre, le brigadier

K. M. Baird, directeur général des Services dentaires des Forces canadiennes, a informé l'Association dentaire canadienne que "le ministre de la Défense nationale a approuvé la recommandation par laquelle, dans les établissements militaires qui ne sont pas encore pourvus d'eau fluorée naturellement ou artificiellement, l'eau distribuée à la consommation doit être fluorée artificiellement dans la proportion de une partie par million. Il a en outre ordonné que les mesures nécessaires soient prises pour appliquer cette disposition aux établissements militaires concernés."

Echec à Regina

Des résultats officiels du référendum sur la fluoration qui s'est déroulé le 3 novembre à Regina indiquent que plus de 12,000 votants se sont montrés favorables à cette mesure.

Pourtant, 18,801 votants se sont prononcés contre, préférant, semble-t-il, ne pas tenir compte des preuves qui établissent au-delà de toute question la sécurité et l'efficacité de cette protection contre la carie.

Detroit — oui à la fluoration

Le 2 novembre 1965, la fluoration l'a emporté à Detroit, de 5,160 voix sur un total de 376,796 votants. La mesure avait

auparavant été approuvée par le conseil municipal de Detroit, mais ses adversaires avaient insisté sur la tenue d'un référendum. Detroit est la plus grande ville américaine qui ait adopté la fluoration par voie de référendum.

Palmarès

Lors de la récente session annuelle de l'American Dental Association à Las Vegas, **P. G. Anderson** de Toronto a reçu les fonctions de président de l'American College of Dentists.

L. M. Grose de Toronto est devenu président de l'International College of Dentists-at-large, le 8 novembre. L'événement a eu lieu au cours de la session annuelle de l'American Dental Association à Las Vegas.

Le 11 décembre, à la clinique Midwinter de la Société dentaire de Vancouver et du district, les dentistes de la Colombie britannique ont offert une montre en or à **W. P. Munsie**, en reconnaissance des services qu'il a rendus à la profession en Colombie britannique et au Canada. Le docteur Munsie a été président du Collège des chirurgiens dentistes de Colombie britannique, et il est actuellement membre du Conseil exécutif de l'ADC.

Applications for FDI Paedodontic Fellowship Invited

The Fédération Dentaire Internationale will announce in 1967 at the XIVth World Dental Congress the first award of the Jessen Fellowship in Children's Dentistry. The fellowship, the value of which will depend upon the distances involved, will be awarded to a person wishing to visit another country for the purpose of studying its dental health services for children. Any reader who wishes to submit his name for consideration by the jury should write to the Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario, before March 31 at the latest, stating the place to be visited, the proposed length of stay and how the community would benefit from the knowledge and experience thereby gained.

in memoriam

Arthur Lambert Walsh

Dr. A. L. Walsh of Montreal, former dean of the Faculty of Dentistry, McGill University, died on December 21, 1965, at the age of 74. He was born in Kingston, Ontario, in 1891.

Associated with dental education at McGill University from the time of his graduation in 1920 until he retired in 1948, Dr. Walsh served the Faculty of Dentistry in various capacities. He was associate professor of operative dentistry from 1924 until 1935; professor of oral surgery from 1935 to 1940; acting dean of the faculty from 1927 to 1940; and dean from 1940 until 1948. During this time he also served as director of the dental department of the Montreal General Hospital from 1924 to 1929. In 1955 he was awarded the title of Professor Emeritus by McGill University.

Dr. Walsh was a member of the medical boards at the Montreal General Hospital, the Western Division of the Montreal General Hospital, the Children's Memorial Hospital and the McKay Institute. He served as president of the Montreal Dental Club in 1928; president of the American Association of Dental Schools from 1941 to 1942; and president of the Canadian Dental Association from 1942 to 1943. He was a former chairman and founding member of the CDA Council on Education and a governor of the College of Dental Surgeons of the Province of Quebec. He was a member of the American Academy of Dentistry and the Adirondack Dental Society.

Among international distinctions conferred on Dr. Walsh were fellowships in the American College of Dentists, the International College of Dentists and the American Academy of Dental Science. He was also a fellow in dental surgery of the Royal College of Surgeons (England).

Dr. Walsh is survived by his wife,

Kathleen; a daughter, Mrs. R. B. Gendall; and a son, Kingsley.

Alden West Faulkner

Dr. A. W. Faulkner of Halifax, Nova Scotia, died on January 25, 1966, at the age of 81. Born in 1885, Dr. Faulkner graduated from Dalhousie University in 1912. He was a member of Dalhousie's Faculty of Dentistry for about 30 years and served on the Nova Scotia provincial dental board from 1923 to 1933.



A. W. Faulkner

Dr. Faulkner was a former president of the Nova Scotia Dental Association, the Canadian Dental Association and the Halifax division of the International Association for Dental Research. At one time he was an associate editor of the *Journal of the Canadian Dental Association*.

In 1959 Dr. Faulkner received an honorary membership in the Canadian Dental Association. He was an honorary member of the Halifax Dental Society at the time of his death.

Besides his wife, Ethel Neruda, Dr. Faulkner is survived by two daughters, Mrs. Harold Pratt of Truro, Nova Scotia, and Ruth Shirley, at home.

Obstacles in the path to an ancient and honourable goal

It would be a shame if our national association were forced to diminish the editorial content of the *Journal of the Canadian Dental Association*. But this is a very real possibility unless some way of reducing or meeting the cost of producing this type of publication can be devised.

The essence of the problem is quite simple. The net cost of publishing the *Journal* exceeds the revenue that it attracts from advertising and subscriptions by about 25 per cent. This difference has usually been met from the Association's general fund. But the annual operating cost of the CDA has also been steadily rising. Association expenditure exceeded revenue in 1964 and 1965 and yet another deficit is anticipated this year. We cannot continue like this indefinitely, and the Association may therefore have to economize in connection with the *Journal*.

The financial health of the *Journal* rests on the balance between the number of pages devoted to advertising and the number assigned to non-revenue producing editorial material. Income from advertising and subscriptions—although steadily increasing over the years—has never matched the total cost of putting out the *Journal*. The struggle to balance revenue and continually increasing cost has always been an unequal contest. Advertisers are basically concerned with the size of the market in which they can sell their products. Publications that enjoy a larger circulation than our *Journal* attract more advertising because they reach a great many more potential customers. But a specialized publication, which distributes 7,300 copies a month to all CDA members and certain domestic and foreign subscribers is at a disadvantage in this respect. Because solvency is largely a function of the *Journal's* advertising revenue, the advertising manager endeavours to convince dental manufacturers and others that the *best* way by which to approach the Canadian dentist is that provided by his own official publication. Dentists interested in supporting their professional publication can thus render powerful assistance in their contacts with representatives of the industry.

The imbalance between *Journal* revenue and expenditure could, of course, be readily eliminated if the editorial content—average 840 pages in 12 issues, 70 pages a month—were significantly reduced. But is this a realistic answer to the problem? And, more important, doesn't such a procrustean 'solution' raise even more fundamental issues?

What do the 6,215 owners of the *Journal* really expect from their publication? Judging by individual comments, some readers look to the *Journal* as a source of new clinical and technical knowledge. Others seek in it information pertaining to the business and economic aspects of dental practice. A further

group regards the Journal as an essential manifestation of the Canadian Dental Association, a vital link between the scattered members of the profession. These readers attach prime importance to the Journal's news columns. They contend that whatever happens in one part of the nation can and does exert an effect upon the rest of the country. If, for example, the government of one province accepts a prepaid dental care scheme proposed by the dentists of that province, this may prove significant or instructive to governments and dentists in other provinces. "What happens to dentists in Regina today can affect their colleagues in Rivière-du-Loup tomorrow," they declare. These readers consider the Journal as the most important channel for the transmission of information within the profession. Effective communication is therefore no luxury, they tell us. Language barriers must not be allowed to impede the flow of information. Any reduction of the Journal at this juncture will, in their view, produce dangerous sludging in the arteries of communication.

It is no easy task to produce a general dental journal which is also the organ of a national dental association and provide something of interest to those who receive it every month. The twofold mission of such a periodical — that of serving the scientific and clinical needs of a profession and conveying information about events in the political and economic sphere — is a demanding task. The endeavour to be responsive to the diverse needs of the membership is also expensive. And our two national languages accentuate the problem. All of this in turn affects the financial position of the Journal. Obviously, something may have to be sacrificed if solvency is to prevail. Otherwise, more help will be needed from the profession since advertising and subscription revenue cannot do much better than the 70-75 per cent of net total cost it now contributes. In that event the Journal's proprietor-dentists may have to find the additional money that is required to help the Association provide the kind of publication that they desire.

A recent editorial¹ in a sister publication summarized the problem very neatly in these words: "The cardinal feature of a professional journal is that, within its editorial and financial resources, it works toward an ancient and honourable goal: a contribution to the national welfare through a high standard of service to a competent and independent profession." In this enterprise every dentist has an equal stake and all have cause to mourn if their official journal fails in its undertaking.

1. Medical journalism. IV: The position of professional periodicals. Editorial, *Canad. M.A.J.* 92:628, March 20, 1965.

To Halifax in June

Halifax, situated on one of the finest harbours in the world, is the site of the 1966 National Convention of the Canadian Dental Association. The city extends over a peninsula and is dominated by its Citadel. This prominent landmark crowns a hill that slopes down to the waterfront. Halifax Harbour, four miles long and nearly a mile wide, was formerly called Chebucto by the Micmac Indians, meaning 'the great long harbour.' McNab's Island lies at the mouth of

the harbour, thus making two entrances to the city. Halifax is second only to Quebec City in natural strength. With the fortification of its approaches, the city was at one time the strongest position in Canada and one of the strongest in the British Commonwealth.

In 1749 Edward Cornwallis arrived at Chebucto with 2,576 settlers after the British government decided to set up an Imperial military and naval post as a rival to the French fortress of Louisbourg. The new town was named after the Earl of Halifax, who as president of Britain's Board of Trade and Plantations had been a vigorous supporter of the settlement scheme.

For the first 66 years of her history Halifax experienced 44 years of war. She played an important part in all the conflicts affecting the British Commonwealth. Her harbour sheltered some of the largest fleets that ever crossed the Atlantic. In the golden age of sail, when wooden ships were built in every harbour of Nova Scotia, ships sailed from Halifax carrying cargoes to the world and bringing goods to be distributed to the Atlantic provinces. During World War I the Atlantic naval base for the Royal Canadian Navy was at Halifax and in World War II this was the largest and most important naval base in Canada.

Halifax has been the victim of two major explosions. The first occurred in 1917, during the First World War, when the Norwegian ship, *Imo*, outward bound with supplies for Belgian relief, collided with the French ship, *Mont Blanc*, inward bound and carrying munitions. Property damage was estimated at \$35 million; 1,630 people were killed and thousands injured. A square mile at Richmond in the north end of Halifax was demolished and part of the town of Dartmouth was also destroyed.

The second explosion took place in 1945, during the Second World War, when an ammunition barge blew up at the magazine jetty at Bedford Basin causing \$4 million damage.

Halifax is the Atlantic terminus of the Canadian National Railway and the chief winter port of eastern Canada while the St. Lawrence River is closed. Its port is open all year.

Canada's biggest export trade in fish and fish products is at Halifax. Lumber and agricultural products are also shipped out of its harbour in large quantities. The city's chief industries include foundries and the manufacture of furniture and other articles of wood, food products, and electronic equipment. There are also major shipbuilding and repair facilities.

The city proudly claims the oldest Anglican Church in Canada. This is St. Paul's Anglican Church, built in 1749, and the only building remaining from Cornwallis' time. It is at Halifax, also, that the first legislative assembly in Canada met in 1758.

The present city covers an area four and half miles long and two miles wide and contains such prominent buildings as the Halifax Memorial Library and the National Research Building. Other noteworthy structures are Government House (the cornerstone for this building was laid in 1800), the Georgian Province House where the legislature has met every year since 1819, and the Roman Catholic Cathedral. Five hospitals are grouped near the Victoria General Hospital and Dalhousie University's medical and dental faculties to serve the citizens of Halifax.

The city is noted as an educational and cultural centre as well as being the chief seaport on Canada's Atlantic coast. Eight institutions of higher learning — among them Dalhousie University, King's College, St. Mary's University and

Mount Saint Vincent College — are located here. The arts are also well represented and devotees of the repertory stage can always count on good performances at the Neptune Theatre.

When you attend the CDA Convention in Halifax June 12-15, don't forget to visit Peggy's Cove, a nearby picturesque fishing village. And tour scenic Nova Scotia before or after the Convention. See its rugged Cape Breton coastline, its peaceful Annapolis Valley and the gentle Land of Evangeline.

Le Journal devra-t-il faire marche arrière?

A moins de trouver une solution efficace au problème que pose l'augmentation constante du coût de publication du *Journal de l'Association dentaire canadienne*, il est à craindre qu'il faille freiner le progrès de notre revue.

Le problème est simple — le budget du Journal est déficitaire. Les revenus provenant de la publicité et des abonnements atteignent à peine 75 pour cent des dépenses régulières. Le problème n'est pas nouveau et l'Association a toujours puisé à même ses fonds pour combler ce déficit. Malheureusement, les dépenses de l'ADC augmentent aussi de façon alarmante. En 1964 et en 1965, les dépenses de l'Association ont dépassé ses revenus. On prévoit pour 1966 un nouveau déficit. Les choses ne peuvent évidemment pas continuer ainsi bien longtemps et il est à craindre que pour atteindre un certain équilibre financier, on se décide à limiter le progrès du Journal.

Le Journal comporte des pages publicitaires qui représentent sa principale source de revenus. Les articles de fond, les éditoriaux et les nouvelles coûtent cher sans apporter le moindre revenu. L'idéal serait évidemment que le revenu provenant de la publicité soit suffisant pour permettre d'atteindre un équilibre budgétaire satisfaisant. Mais cet idéal semble impossible à atteindre car le coût de la production augmente sans cesse à un rythme plus rapide que l'augmentation des recettes publicitaires. Le Journal de l'ADC est une publication de nature tout à fait spécialisée et sa circulation peut difficilement dépasser 7,300 numéros par mois, puisqu'il n'est acheté que par les membres de l'ADC et quelques abonnés étrangers. Ne pouvant augmenter la circulation, il nous est également impossible d'augmenter le potentiel publicitaire de la revue, puisque la préoccupation primordiale de nos annonceurs est d'atteindre un grand nombre de clients éventuels.

Il serait évidemment facile d'équilibrer revenus et dépenses en diminuant le nombre de pages consacrées chaque année aux articles et aux affaires de l'Association. Nous y consacrons annuellement 840 pages, soit 70 pages par mois. Une trop grande diminution pour améliorer l'équilibre financier de la revue ne serait certes pas un progrès, et en adoptant une telle attitude, nous ne ferions que remettre au lendemain la solution d'un problème qui, ayant été mis en veilleuse, n'en demeurerait pas moins réel.

Il y a au Canada 6,215 dentistes qui sont en même temps lecteurs et co-propriétaires du Journal. Qu'attendent-ils de leur revue? Croient-ils que la lecture du Journal doit leur permettre de se tenir au courant de tous les progrès de l'exercice clinique de la chirurgie dentaire? D'autres voudraient peut-être que l'on traite davantage de l'administration d'un cabinet dentaire?

Certains lecteurs considèrent le Journal comme une des manifestations exté-

rieures les plus importantes de l'existence de l'Association dentaire canadienne. Pour eux, le Journal est le lien qui unit les dentistes qui pratiquent d'une extrémité du Canada à l'autre. Pour ces lecteurs, la chronique des Actualités dentaires prend une importance toute particulière. Ils croient que ce qui se passe à un bout du pays a des répercussions inévitables jusqu'à l'autre extrémité. Si par exemple, le gouvernement d'une province décide de donner suite aux suggestions de l'association dentaire locale et met en force un programme de soins dentaires, il s'agit là d'un événement qui saura intéresser et influencer les gouvernements et les dentistes des autres provinces. Ce qui arrive aujourd'hui aux dentistes de Regina affectera demain leurs collègues de Rivière-du-Loup. Ces lecteurs considèrent le Journal comme l'organe de communication le plus important de notre profession. Les communications ne sont plus un luxe aujourd'hui, et la barrière des langues ne devrait pas empêcher l'échange d'information. Toute entrave au progrès du Journal risque de produire un retard dangereux dans les communications.

Le Journal doit à la fois renseigner ses lecteurs sur les problèmes scientifiques et cliniques, il doit les tenir au courant des politiques adoptées par l'Association nationale, sans oublier de parler de l'évolution sociale de la profession et des problèmes économiques qui peuvent en résulter. Malheureusement, nous ne pouvons répondre à tous les besoins de nos membres sans qu'il en coûte cher. Le caractère bilingue et bi-culturel de notre population ne facilite pas les choses. Bien au contraire. Il augmente les problèmes financiers déjà très graves du Journal. S'il faut accorder priorité à l'équilibre budgétaire, il faudra renoncer à établir des communications efficaces entre tous les membres de la profession et subir les conséquences néfastes de l'isolement qui en résultera. Si les 6,215 dentistes propriétaires du Journal trouvent inacceptable un tel recul, il leur faudra trouver les fonds nécessaires pour permettre à l'Association dentaire canadienne de publier le Journal dont ils ont besoin, ou alors, exiger que celle-ci diminue ses dépenses et ses activités dans d'autres domaines. Il n'y a pas de solution facile.

Auxiliaires, omnipraticiens et spécialistes de demain

Plusieurs faits s'imposent à ceux qui surveillent l'évolution de la profession dentaire. Seule une fraction de la population reçoit des soins dentaires adéquats. Le nombre des dentistes augmente à un rythme plus lent que celui de la population. Très peu de dentistes seraient en mesure de recevoir un plus grand nombre de patients. Enfin, si un programme gouvernemental venait pousser une plus grande partie de la population à se faire traiter, il est probable que la profession dentaire ne pourrait suffire à la tâche.

Par ailleurs, le travail du dentiste devient de plus en plus compliqué. Pour mieux traiter le patient, on a mis au point des techniques nouvelles et créé des spécialités qui nécessitent des études prolongées.

Sous prétexte de parer au manque de dentistes, on a été heureux de se décharger sur les auxiliaires d'opérations à la fois simples et désagréables. Constatant ensuite que cette délégation de responsabilités entraîne à la fois une augmentation de sa productivité et de son revenu, le dentiste a voulu charger l'hygiéniste de responsabilités additionnelles: radiographies, modèles, etc.

Des gouvernements ayant à faire face aux dépenses considérables qu'entraînent des programmes de soins dentaires, ont eux aussi choisi de faire appel aux auxiliaires. En Nouvelle-Zélande, depuis plusieurs années des infirmières prennent à elles seules la responsabilité du traitement des enfants d'âge scolaire. Sans surveillance, elles font dans des cliniques tous les traitements dont les enfants ont besoin. Si l'on fait exception des extractions qui ne sont pas souvent nécessaires, puisque les enfants sont traités régulièrement, on réalise que ces infirmières n'ont à consulter le dentiste guère plus souvent que l'omnipraticien d'ici a à consulter le spécialiste.

Les observateurs qui ont vu les résultats obtenus chez les enfants néo-zélandais sont unanimes à déclarer qu'ils sont aussi bien traités que la moyenne des enfants de chez-nous. La Commission Hall n'a pas été sans remarquer l'expérience néo-zélandaise, et il est probable que les programmes gouvernementaux à venir fassent largement appel aux auxiliaires pour obturer les dents des enfants.

Est-il possible de croire qu'après avoir fait traiter à bon marché et de façon satisfaisante les enfants, un gouvernement accepte de faire obturer les dents des adultes par les dentistes, à un taux beaucoup plus élevé? Est-il possible de croire qu'après avoir fait faire les modèles d'étude par les hygiénistes et confié la réalisation des appareils de prothèses à des techniciens, on continue à payer le gros prix au dentiste pour prendre une impression et l'envoyer au laboratoire? On se contentera tout au plus de lui demander son avis quant au genre d'appareil requis.

Si l'évolution qui est amorcée se continue, le dentiste de 1975 risque fort de n'avoir plus à faire de prophylaxie, de dentisterie opératoire ou de prothèses.

A l'opposé, on entend souvent des spécialistes mettre en doute la compétence et les qualifications des omnipraticiens lorsqu'il s'agit de faire des travaux qu'eux-mêmes ne peuvent effectuer convenablement qu'à cause de leurs qualifications supérieures.

Si toutes les tâches mineures sont confiées à des auxiliaires, si toutes les opérations sérieuses sont confiées à des spécialistes, que restera-t-il à l'omnipraticien de demain?

S'il est libéré de ses responsabilités les plus simples, l'omnipraticien devra nécessairement diriger son activité vers des domaines qu'il préfère trop souvent aujourd'hui laisser au spécialiste. La chirurgie, l'endodontie et la périodontie ne présentent pas dans leur pratique quotidienne de difficultés insurmontables pour le jeune diplômé qui s'y serait préparé par quatre années d'études universitaires orientées vers ces disciplines plutôt que vers les disciplines restauratives. Si, grâce à un programme gouvernemental, toute la population devait se faire traiter, les demandes dans le seul domaine de la périodontie seraient suffisantes pour occuper tous les dentistes de la province à temps complet, pourvu qu'ils soient disposés à reconnaître les cas et à les traiter. Il est impensable de vouloir confier à des spécialistes le traitement d'une maladie qui atteint 99 pour cent de la population.

Les étudiants d'aujourd'hui qui seront les dentistes de 1980 et de 1990 devraient recevoir dès maintenant une formation qui leur permettra d'assumer leurs responsabilités dans 20 ans. La profession dentaire devrait aussi se préoccuper de mettre sur pied un système de cours de perfectionnement qui permettra de parer aux carences d'un enseignement universitaire qui n'avait pas prévu l'évolution que subit actuellement la profession. Il ne suffit pas d'introduire des auxiliaires qui répondront aux besoins élémentaires de la

population. Il faut aussi faire évoluer les omnipraticiens d'aujourd'hui de façon à ce qu'ils puissent assumer des responsabilités nouvelles et servir adéquatement une population qui découvrira sous peu les bienfaits de la santé dentaire.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

Correspondance en français

Au rédacteur:

J'ai reçu, le 26 janvier 1966, une lettre personnelle du secrétaire de l'Association dentaire canadienne.

Le fait de recevoir une lettre du secrétaire n'a rien de remarquable en soi, mais ce qui est remarquable dans ce cas, c'est que, pour la première fois, une lettre m'est écrite dans un français très passable.

Je souligne cet incident, car il marque une déférence à l'endroit des membres de langue française de l'ADC.

Je ne peux qu'encourager le secrétariat de l'Association à continuer cette façon de faire; elle contribue à l'unité des citoyens

du Canada et à celle des membres de la profession dentaire.

Gérard de Montigny, DDS,
Faculté de chirurgie dentaire, Université de
Montréal.

Duty on Imported Equipment and Material

To the Editor:

I cannot accept why the dental profession should have to pay duty on certain items which are not manufactured in Canada. This only makes the practice of dentistry more expensive. For example, hand instruments used in the mouth, which are not manufactured in Canada, are duty free. But, filling materials used in the mouth, which are not manufactured in Canada, have duty imposed on them. Expressing this in dollars, an amalgamator, listing for \$115 in the United States, retails for \$165 in Canada after it has made its way through customs. There is reason enough for the government to tax an item made in a foreign country so as to protect the Canadian market when this item is manufactured in Canada. After all, this is the real purpose of the duty; but why levy duty on items that are not even produced in Canada? This increases the cost of dental practice unnecessarily. Moreover, why should certain items required for the practice of a health profession be duty free while items, equally indispensable to such a practice, have a duty imposed?

May I suggest that the Canadian Dental Association investigate this matter, and draw the federal government's attention to it? After all, not only the dentists but the people of Canada would benefit.

Mark Lazare, DDS,
12774 Gouin Blvd. W., Pierrefonds, P. Que.

To the Editor:

The rationale of customs tariffs and sales taxes, as applied to dental equipment and supplies, is based on a complex mixture of trade agreements and revenue-producing

regulations. It is part of a much larger system of taxation by which our governments attempt to give priorities to Canadian manufactured goods and to create a source of income. Dental products, like most others, come under continual scrutiny by tax boards who adjust the tariffs and taxes in accordance with federal and provincial tax laws.

Every item that is purchased for use in a dental office is categorized. The categories are large and cover all manner of goods. Specific regulations have been laid down for each category. To have a tax changed on a certain dental item requires either that its category be changed or that regulations governing its category be modified. Neither are impossible but both are difficult because of implications in so many other non-related areas.

Some articles are taxed by both federal and provincial governments; some are free of all taxes; and some are taxed by one government and not by others.

Under federal tax laws, both customs tax and excise or sales tax may be applicable. Customs tariffs are applied to goods coming into Canada from other countries. The amount of tax varies with the country from which the article comes. Prior to 1955 nearly all dental equipment coming into Canada carried customs tariffs of from 25 to 35 per cent. In 1955, through efforts of the Canadian Dental Association, these tariffs were largely eliminated. Today, most dental items, including units, chairs, and x-ray equipment, are free of this duty. Items which are considered to have uses other than those directly related to health services do not enjoy the same exemptions.

The federal excise or sales tax is an 11 per cent tax, and it applies whether the article is manufactured in Canada or elsewhere. Dental units, chairs, cuspidors, engines, etc. are subject to this tax, while handpieces, impression trays, instruments, sterilizers, x-ray equipment are exempt.

The examples of an amalgamator and dental cements mentioned in Dr. Lazare's letter are both classed by the tax board as articles that may have a use other than in dentistry. They are subject to import duty of up to 25 per cent as well as the 11 per cent federal sales tax.

In addition to federal taxes, there are also provincial sales taxes, collected by most provinces. The amount of tax and the articles to which it applies vary from province to province. Provincial retail sales tax acts provide the necessary detail in each province.

The Canadian Dental Association is cognizant of the advantages to the practising dentist of further tax reductions on dental equipment and supplies. It continues to seek ways and means of obtaining additional tax concessions.

W. G. McIntosh, DDS,
Secretary, Canadian Dental Association.

Local Anaesthetics in Cardiovascular Disease

To the Editor:

In your editorial "From Precedent to Doctrine" (January issue) you cite the case of a dentist who was held responsible for the death of a patient with cardiovascular disease following injection of a local anaesthetic. Cause of death was attributed to the adrenalin in the anaesthetic solution. We are not told how much adrenalin was used, or whether or not it was injected intravascularly. This is unfortunate as the answers to these questions are probably the crux of the matter.

The use of adrenalin in the presence of cardiovascular disease is thoroughly discussed by the Council on Dental Therapeutics of the American Dental Association in their book *Accepted Dental Remedies*, 1965, pages 77 to 81, with 21 references cited. The consensus seems to be that in cases of cardiovascular disease the use of adrenalin at no higher concentration than 1:50,000 (but preferably 1:100,000) in 2 ml. of anaesthetic solution is safe, provided the dentist aspires to ensure against intravascular injection. In fact, it is suggested that when no adrenalin is used, the anaesthetic solution is less liable to be completely effective, the resulting discomfort causing the patient to release excessive amounts of his own adrenalin into his blood-stream.

I suspect that the lesson to be learned from the case cited in your editorial is not that no adrenalin should be used in the presence of cardiovascular disease, but rather that proper amounts should be used, with careful aspiration during the injection. I would welcome further discussion on this obviously important subject in general, and on this case in particular.

D. C. Teskey, DDS,
170 St. George St., Toronto, Ont.

Dr. Teskey's letter generated further correspondence with Dr. B. L. Douglas, former editor of the Journal of the American Dental Society of Anesthesiology; Mr. Harvey Sarnier, secretary of the ADA Judicial Council; and Dr. J. Roy Doty, secretary of the ADA Council on Dental Therapeutics. Mr. Sarnier forwarded a transcript of the court's decision in the case to which Dr. Teskey makes reference. Dr. Douglas' comments are reproduced below:

To the Editor:

I hasten to reply to your letter of February 18, in which you have elaborated on a subject of concern to me.

Frankly, when Mr. Sarnier mentioned the third case in his article in our anaesthesia journal, I, too, was concerned that the legal decision seemed to be in contradiction to current practice. Nevertheless, I felt it important that our readers know what the

courts are saying about a matter of concern to dental practice.

I enclose a reprint of an editorial which I wrote on the subject of using or not using adrenalin in local anaesthesia so that you can see where I stand on the subject. I agree wholeheartedly with the gentleman who wrote to you on the subject.

You might well follow up on this matter by bringing to the attention of your readers what is now commonly accepted practice in most learned dental circles, and you will be supported with comments made at various national and state levels on this subject.

I have discussed the matter of adrenalin use in patients with cardiovascular disease with a number of open-minded internists, and they have readily admitted that the amount of adrenalin commonly used in dental practice is universally harmless—*assuming that the drug is not injected intravascularly* (and not too rapidly).

Our society, I am sure, will be pleased to support any educational program you are interested in conducting through your Journal.

B. L. Douglas, DDS,
808 South Wood St., Chicago, Ill., USA

Dr. Doty provided the following information from the February 1966 meeting of the ADA Council on Dental Therapeutics:

Misunderstanding may have arisen from a misinterpretation of the published statement from the Sanzari vs. Rosenfeld case: "Evidence showed that the cause of death was the injection of the adrenalin." Mr. Sarner was reporting the finding of the court that "Medical testimony showed that the adrenalin-bearing compound . . . caus(ed) the . . . ensuing death." He was not attempting to make a personal conclusion as to the suitability of the use of this anaesthetic.

Unfortunately, there appears to be a fairly widespread impression among general physicians that adrenalin-containing local anaesthetics should not be employed in patients with cardiovascular disease. . . . The crux of the problem is not whether adrenalin is used but rather how it is used.

If adrenalin is injected intravascularly it will quickly affect the heart and quickly but temporarily raise the blood pressure. If the injection is made properly outside of the vascular system, the local vasoconstriction will greatly retard the absorption into the blood vessels of both the adrenalin and the local anaesthetic. Since circulating adrenalin is rapidly inactivated by the liver and other tissues and because there is very slow absorption from the extravascular site, the blood level of adrenalin, after proper injection of the local anaesthetic solution, should never reach the point where it will substantially affect the heart or blood pressure. On the other hand, if an ineffective local anaesthetic is employed, the pain may stimulate the patient's adrenal medulla to secrete into

the circulating blood amounts of adrenalin in excess of the amount which may be injected with a local anaesthetic. Thus to use a local anaesthetic with a vasoconstrictor could be less hazardous to the patient than the use of an anaesthetic without a vasoconstrictor.

It appears that the record in the Rosenfeld case has been confused because in the trial court the defence failed to introduce testimony by an expert witness to refute the testimony of the expert witness for the plaintiff to the effect that an adrenalin-containing anaesthetic is contra-indicated in patients with cardiovascular disease. The firm's brochure itself did not state that the lidocaine with adrenalin was contra-indicated in a patient with hypertension. It merely stated that lidocaine without adrenalin is "adequate in those cases where vasopressor drugs may be contra-indicated." The defendant testified that lidocaine with adrenalin was not contra-indicated but apparently more weight was attached to the testimony of the physician (witness for the plaintiff) since the report of the decision of the State Supreme Court seems to assume that the anaesthetic with adrenalin should not have been administered. Although the case was remanded there is no indication that the case was retried on its merits.

In this case the Supreme Court of New Jersey held that the trial court had acted improperly in dismissing the lawsuit against the defendant dentist. The Supreme Court said that the jury could have found that the dentist was negligent; the Supreme Court did not say that the dentist was negligent in administering the anaesthetic. The Supreme Court found there was evidence that the cause of death was the administration of the anaesthetic. This does not necessarily mean that the dentist was negligent in administering an anaesthetic as it is the usual rule in malpractice that the mere fact an injury occurred does not by itself mean that the doctor was negligent.

This court decision should not be considered as an indictment against using an adrenalin-containing anaesthetic in all cases where patients have cardiovascular disease. From the legal view this case means only that (a) the failure to read the enclosed brochure could constitute malpractice and (b) there are circumstances in which a physician may be a qualified 'expert' in a dental malpractice case.

If the scientific and clinical evidence continues to support accepted current practice, the welfare of the patient should be best served by continuing the present material in *Accepted Dental Remedies* (pages 2-3 and 79). It is further important to protect the well-informed and conscientious dentist from the potential liability that might be associated with better professional procedures (use of local anaesthetic with adrenalin) as a result of the Rosenfeld case — if it were construed to establish a precedent.

Significance of surface size of intra-oral carcinoma

D. L. Anderson,* DDS, MScD, Toronto, Ontario

This report on 1,707 cases of intra-oral carcinoma reveals that surface size of the primary squamous cell carcinoma is significantly related to the invasiveness by the carcinoma of local tissue and regional lymph nodes, but is not significantly related to the presence of distant metastases. Surface size is also significantly related to survival, but the significance differs at different sites. Two centimetres is the critical size for lesions of the gingiva and buccal mucosa. All sizes are critical for the tongue, but the size of palatal lesions is not closely related to survival. Although surface size is important, all oral lesions should be palpated. This results in doubling the visual appreciation of the actual volume of the tumour. Site also affects the relation of surface size to local and regional invasiveness, and this effect on invasiveness is similar to its effect on survival. Site differences are not due entirely to differences in cell differentiation. Survival is significantly related to local and regional invasiveness, but again site differences occur. Whether or not lymph nodes are palpable, suspicion of malignancy must be high.

■

Cette étude porte sur 1,707 cas de carcinome intra-oral. Il semble que la grandeur de la lésion primaire du carcinome soit directement relié à la tendance qu'a celui-ci de s'étendre aux tissus environnants aussi bien qu'aux lymphatiques.

Elle ne nous renseigne cependant pas sur l'existence de métastases. L'étendue de la lésion superficielle est aussi reliée au taux de survie. La relation varie cependant suivant la localisation de la lésion. Une lésion de plus de cm.² située sur la gencive ou la muqueuse buccale est spécialement dangereuse. Toutes les lésions de la langue, elles sont dangereuses, quelle qu'en soit la surface. La gravité des lésions du palais n'est cependant pas reliée à leur superficie. Il ne faut pas se contenter d'examiner la lésion. Il faut aussi en faire la palpation, ce qui permet au clinicien de se renseigner non seulement sur la superficie, mais aussi sur le volume de la tumeur. Suivant la localisation de la lésion, il y a de grosses variations quant au caractère de pénétration et au taux de survie. Ces différences de localisation ne sont pas dues exclusivement à des différences dans les caractères des cellules. Le taux de survie est directement proportionnel au taux de pénétration locale et régionale, mais ici encore la localisation de la lésion amène de fortes différences. Même en l'absence de ganglions palpables, il faut toujours considérer le possibilité de lésion maligne.

It is often stated that the smaller the malignant tumour when detected, the better is the prognosis for survival. Smaller in this context refers to the volume of the tumour. Surface size in terms of the

largest diameter perhaps may not be related closely to the volume of an oral tumour. Even more important than volume is whether the tumour is superficial or whether it extends deeply into the normal tissue. Surface size of an oral carcinoma is an important clinical sign only if it is related to the extent of invasion and to survival.

Between 1929 and 1958, there were 1,944 cases of intra-oral carcinoma registered at the Ontario Cancer Institute clinic at the Princess Margaret Hospital in Toronto. These cases were judged to have originated in the tongue, floor of the mouth, palate, gingiva, and buccal mucosa. Ash in 1962¹ reported on certain aspects of these cases. He kindly permitted further analysis of these cases for the present study.

Data from these cases were available on computer punch cards at the Princess Margaret Hospital. This is the source of the material for this report. Of the 1,944 cases, a definite pathological diagnosis was stated for 1,707. Cases with a diagnosis of squamous cell carcinoma were selected from these 1,707 records. Size of the squamous cell carcinoma was stated in 1,571 cases as 0-1 cm., + 1-2 cm., + 2-5 cm., or + 5 cm. Tables 1-3 state the number of carcinomas in each size group at each site for which data were available on the extent of invasion of the squamous cell carcinoma. Local invasiveness refers to the invasion of muscle, bone and neighbouring organs. Regional invasiveness refers to cervical lymph nodes palpable on admission of the patient to the hospital. Distant invasiveness refers to metastases found beyond the clavicle on admission or later.

Seven hundred and eighty deaths due to intra-oral squamous cell cancer occurred within five years of registration. Five hundred and thirty-eight patients survived at least for five years. From these the per cent survival was determined (Tables 4-6). Not all patients appear as either dead or alive because some had died from causes other than oral cancer, some had not reached the five year anniversary yet, and some could not be traced.

The analytical procedures used in this

study are recognized as applicable to the evaluation of biological data. To compare surface size and invasiveness, surface size and survival, invasiveness and survival, an analysis of variance of the transformation of the arcsin of the percentages was made. Comparisons were made at separate sites using the Brandt and Snedecor² method to determine the chi-square. Probability (P) values of less than 0.01 indicate that the relationship between the factors being compared is statistically significant.

Specifically, the study was undertaken to determine:

1. If most of the oral malignancies arise in the surface epithelium;
2. If the surface size of the oral primary squamous cell carcinoma is related to the invasion by the tumour of local tissue, regional lymph nodes, and distant metastases;
3. If surface size is related to survival of the patient;
4. If site influences the relationship of surface size to survival and invasiveness;
5. How closely related local and regional invasiveness is to survival;
6. What was the surface size and degree of invasion at the time the patients were admitted for treatment.

FINDINGS

In 1,707 of the cases the type of carcinoma was stated, and in 1,664 (97.4 per cent) the type of carcinoma was squamous cell.

From the percentages in Tables 1-3 it was determined that the relationship between surface size of the primary lesion and:

- (a) local invasiveness is highly significant ($P = < 0.001$);
- (b) regional lymph node involvement is significant ($P = < 0.01$); and
- (c) the presence of distant metastases is not significant.

Analysis of the percentages in Table 4 indicated that the relationship between surface size of the primary lesion and survival is highly significant ($P = < 0.001$).

Analysis of individual sites in Table 4 revealed that the relation of surface size

TABLE 3 Relation of surface size of intra-oral carcinoma to distant invasiveness.

SIZE	CM.	TONGUE				FLOOR				PALATE				GINGIVA				BUCCAL MUCOSA			
		0-1	+1-2	+2-5	+5	0-1	+1-2	+2-5	+5	0-1	+1-2	+2-5	+5	0-1	+1-2	+2-5	+5	0-1	+1-2	+2-5	+5
TOTAL	NO.	72	157	315	84	18	61	92	14	7	21	45	14	12	68	232	49	27	72	158	53
METASTASES NOT RECORDED	NO.	69	143	274	74	16	58	84	11	0	18	39	12	10	59	211	46	27	68	141	44
METASTASES NOT RECORDED	%	96	91	87	88	89	95	91	79	0	86	87	86	83	87	91	94	100	95	89	83

to survival varies at different sites. For the tongue, the smaller the surface size the better is the survival. Each size group is critical. There is a similar trend for the floor of the mouth, but the relationship is not as significant. This is partly due to the smaller number of cases in each size group. For the palate there is a slight trend, but the relationship is inconclusive. Again, small numbers of cases are available for analysis. For the gingiva and buccal mucosa, the 2 cm. size is critical. In the smaller size group survival was no better.

In Table 1 the comparison at individual sites indicates that the relationship of primary surface size to invasion of local tissues varies at different sites. All sizes are critical for the tongue and floor of the mouth. The smaller the surface size, the less extensive is the invasion of local tissue. The palate shows a similar relationship, but it is not as significant. The buccal mucosa and gingiva show a significant relationship only in lesions over 2 cm. in size.

In Table 2 a comparison of individual sites shows that the relationship of primary surface size to invasion of regional lymph nodes varies at the different sites. All sizes are critical for the tongue. For the floor of the mouth and the buccal mucosa only the 2 cm. size is critical. There is a trend for the gingiva, but it is not very definite. There is no positive correlation for the palate until the lesion is 5 cm. in size.

From the percentages in Tables 5 and 6 it was determined that the relationship between survival and:

- (a) local invasiveness is highly significant ($P = < 0.001$);
- (b) regional invasiveness is significant ($P = < 0.01$).

In Table 5 a comparison of survival and the degree of local invasiveness indicates a significant relationship at all sites. Local invasiveness is most important for the buccal mucosa, significant for the gingiva, and less significant for the tongue and floor of the mouth.

In Table 6 it may be seen that a comparison of survival and regional invasiveness at individual sites revealed a significant relationship between node involvement and survival for the tongue, floor of

TABLE 5 Relation of local invasiveness of intra-oral carcinoma to survival.

REGIONAL INVOLVEMENT	TONGUE		FLOOR		PALATE		GINGIVA		BUCCAL MUCOSA		ALL SITES			
	no nodes	nodes involved	no nodes	nodes involved	no nodes	nodes involved	no nodes	nodes involved	no nodes	nodes involved	no nodes	homolateral movable	contra or bilateral movable	fixed
TOTAL dead & alive	NO. 345	175	105	53	60	26	194	96	188	75	892	231	41	153
ALIVE	NO. 159	26	65	11	26	7	93	23	117	11	460	61	8	9
SURVIVAL	% 46	15	62	21	43	27	48	24	62	15	52	26	20	6
PERCENT SURVIVAL														
PROBABILITY VALUE	<0.005		<0.005		N.S.		<0.005		<0.005		<0.005			

the mouth, gingiva, and buccal mucosa, and a slight trend for the palate. Survival was very poor when lymph nodes were fixed. It was significantly lower than when palpable lymph nodes were present but movable.

In Table 7 it is evident that two-thirds of the gingival lesions were 2-5 cm. in size, and less than one-quarter were under 2 cm. at the time of registration of the patients. At the other sites one-half were 2-5 cm. in size, and approximately one-third were less than 2 cm. Only one in 10 were under 1 cm. in size.

Approximately one-third of all the oral squamous cell carcinomas were confined to one region, one-third invaded more than one region, and one-third invaded muscle, bone or neighbouring organs. Site variation was noted in that about one-half of the tongue lesions had invaded muscle, bone or neighbouring organs, whereas only 15 per cent of the buccal mucosal lesions had done so. One-half of the palatal lesions invaded more than one region, and only one-fifth of the floor lesions involved more than one region. Forty-five per cent of the floor of the mouth and buccal mucosal lesions were confined to one region at the time they were detected.

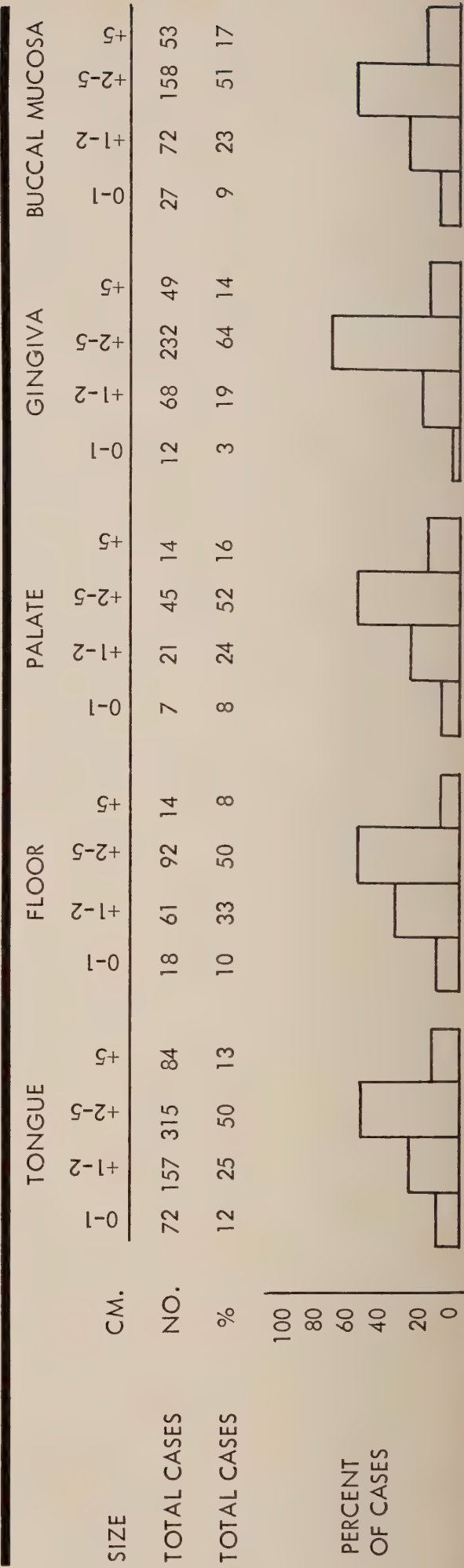
On admission 70 per cent of the patients had no palpable regional lymph nodes. There was only a minor difference when carcinomas were classified according to their origin. The floor of the mouth lesion was associated with node involvement most often (33 per cent), and buccal mucosal lesion the least (23 per cent).

Distant metastases were recorded in 10.6 per cent of the patients on admission or later. The prevalence was similar for all sites except the palate, in which 21 per cent had metastases. All seven of the palatal lesions under 1 cm. in surface size had distant metastases.

DISCUSSION

Squamous cell prevalence of 97.4 per cent in this group of intra-oral carcinomas is in agreement with the high prevalence reported in the literature. Ninety to 99.4 per cent of the oral carcinomas were squa-

TABLE 7 Surface size of intro-oral carcinoma at time of detection.



mous cell in the cases reported by Archer and Morris (1946),³ Easson (1963),⁴ Gibbel, Cross and Ariel (1949),⁵ Gardner, Hamburger and Love (1963),⁶ and Jorstad (1942).⁷ Thus, since nearly all primary oral malignancies arise in the epithelium of the oral surface, it is reasonable to inspect oral surface characteristics such as surface size of the lesions.

Fletcher, MacComb and Shalek (1962)⁸ reported definite correlation between size of the primary intra-oral squamous cell carcinoma and incidence of palpable neck nodes, but added that there are exceptions: "Early lesions may be seen with big nodes fixed or bilateral, and conversely, very extensive lesions may have single, small, or even no palpable nodes at any time."⁸ Although the results in the present study show a significant relationship between surface size and extent of invasiveness of both local tissue and regional lymph nodes, the above comment concerning individual exceptions should be emphasized. The clinical examination of a lesion should never be limited to visual findings. The lesion should be palpated also. This results in doubling the visual appreciation of the actual volume of the tumour (Ackerman and Del Regato 1962⁹).

Many cancers of the posterior part of the mouth have been discovered as a result of the detection of painless enlarged cervical lymph nodes (Sage 1960¹⁰). Examination of regional lymph nodes is important, and the presence of enlarged nodes should arouse suspicion, but the dentist must be suspicious of an oral lesion even if lymph nodes are not palpable. It is much more important to detect lesions before regional lymph node involvement than after, because the chances of survival are then so much better. This is true even though 23 per cent of those with no nodes involved on admission did develop them later (Ash 1962¹). Fixation of cervical lymph nodes has been stressed in the detection of oral cancer. Fixation is important, but not in regard to making a useful diagnosis. For when a case is detected with fixed lymph nodes the chances of survival are so poor (6 per cent) that the diagnosis becomes almost only of academic interest in comparison to the real value to the patient

of a diagnosis made when there is no involvement (52 per cent survived).

Blood stream metastases from oral squamous cell carcinomas were once believed to be uncommon (Shafer, Hine and Levy 1963¹¹). Fletcher, MacComb and Shalek (1962)⁸ believe the incidence of distant metastases has increased over the years due to earlier diagnosis and better control of the primary and neck metastases. Prevalence of distant metastases in the range of 1-24 per cent was reported by Castigliano and Rominger (1954),¹² Tiecke, Stuteville and Calandra (1959),¹³ and Gardner, Lilley and Simmons (1963).¹⁴

Oral squamous cell carcinomas that are invasive are termed endophytic; those with less invasive tendencies are termed exophytic. One type of oral exophytic tumour is called verrucous (Ackerman 1948).¹⁵ It spreads on the surface, but when advanced it may become invasive (Ackerman and Del Regato 1962⁹). The verrucous type is found on the lower lip, buccal mucosa, and gingiva.⁹

The reason why squamous cell carcinoma is more invasive at some sites could be related to a greater lack of differentiation of the cells at these sites. Fletcher, MacComb and Shalek (1962)⁸ state that the vast majority of oral squamous cell carcinomas are well differentiated. In 401 squamous cell carcinomas selected by Tiecke and Bernier (1954)¹⁶ from 800 intra-oral malignancies, the cell differentiation according to Broder's classification was Grade I—10 per cent, Grades II and III—84 per cent, and Grade IV—6 per cent. In the present study of the 1,318 dead due to oral cancer or living at five years, only 2.3 per cent were specially noted to be anaplastic; and there was no significant difference between the group dying from the oral cancer (anaplasia noted in 2.6 per cent) and those that survived (anaplasia noted in 1.9 per cent). Ackerman and Del Regato (1962)⁹ stated that most of the carcinomas of the tongue are rather undifferentiated; those of the floor of the mouth are moderately differentiated; those of the gingiva and buccal mucosa are exophytic, ulcerating, or verrucous; and those of the palate are usually well differentiated. In the present study anaplasia was specially noted in

2.5 per cent of the lesions of the gingiva and buccal mucosa, and in 1.9 per cent of the lesions of the tongue and floor.

It was also noted that for lesions of the gingiva and buccal mucosa there appeared to be a critical surface size, 2 cm., above which the lesions were invasive. For cancer of the lip in Ontario it was noted that the 2 cm. size was of statistical significance (Stoddart 1962¹⁷). Ackerman and Del Regato (1962)⁹ observed that the verrucous type, no matter how extensive or how deeply invasive, maintains an extremely well differentiated pattern. Thus the degree of all differentiation does not wholly explain the site differences in invasive tendency.

Since invasiveness is the characteristic of malignant squamous cells which causes death, it is not surprising that the degree of invasiveness of local tissue and regional lymph nodes is related to survival. This relationship, in general, is well known. Actual figures based on a large number of cases, however, indicate the degree of significance of the relationship.

The survivals represent the results obtained by the treatment policy which has gradually evolved over 30 years in the clinic of the Princess Margaret Hospital. During the period under review marked changes and improvements have occurred in both the surgical and radio-therapeutic management. In general, the treatment policy was that the primary intra-oral lesions were managed by radiotherapy, while the metastatic nodes in the neck, wherever possible, were dealt with by surgical measures, preferably radical neck dissection (Ash 1962¹).

The results of the present analysis indicate that the surface size of the primary lesion is related to survival. Thus, surface size is an important sign, and detection of a lesion while still of small surface size is important. How significant the surface size is depends on the site.

CONCLUSIONS

Since most oral malignancies arise in the epithelial surface it is reasonable to study oral surface characteristics such as surface size.

Surface size of the primary squamous cell carcinoma is related to invasiveness of local tissue and regional lymph nodes, but is not related to invasiveness of distant sites.

Primary surface size is significant in regard to survival, but the significance differs at different sites. Two centimetres is a critical size for squamous cell carcinomas of the gingiva and buccal mucosa. All sizes are critical for the tongue, but surface size of palate lesions is not significantly related to survival.

The relation of surface size to local and regional invasiveness is different at different sites. The effect of site on invasiveness is similar to its effect on survival. Two centimetres is the critical size for lesions of the gingiva and buccal mucosa. All sizes are critical for the tongue. Invasiveness of palatal lesions is not related closely to surface size. Site differences in invasiveness are not due entirely to differences in cell differentiation.

Survival is significantly related to the degree of invasiveness of local tissues and regional lymph nodes, but again there are site differences.

More than three-quarters of the lesions of the gingiva, and two-thirds of the lesions at the other sites were over 2 cm. in size. Survival chances are much better for lesions under 2 cm.; and for the tongue better still when detected under 1 cm. Although surface size is important, lesions should also be palpated. Whether or not cervical lymph nodes are palpable, suspicion of malignancy of oral lesions must be high. By the time lymph nodes are fixed the detection is too late.

SUMMARY

Of 1,707 cases of intra-oral carcinoma at the Toronto clinic of the Ontario Cancer Institute, 97.4 per cent were of squamous cell type. Surface size of the primary squamous cell carcinoma is significantly related to the invasiveness by the carcinoma of local tissue and regional lymph nodes, but is not significantly related to the presence of distant metastases.

Surface size is significantly related to survival, but the significance differs at different sites. Two centimetres is the

critical size for lesions of the gingiva and buccal mucosa. All sizes are critical for the tongue, but the size of palatal lesions is not closely related to survival. More than three-quarters of the lesions of the gingiva, and two-thirds of the lesions at the other sites were over 2 cm. in size. Although surface size is important, all oral lesions should be palpated.

Site also affects the relation of surface size to local and regional invasiveness, and this effect on invasiveness is similar to its effect on survival. Site differences are not due entirely to differences in cell differentiation.

Survival is significantly related to local and regional invasiveness, but again site differences occur. Whether or not lymph nodes are palpable, suspicion of malignancy must be high.

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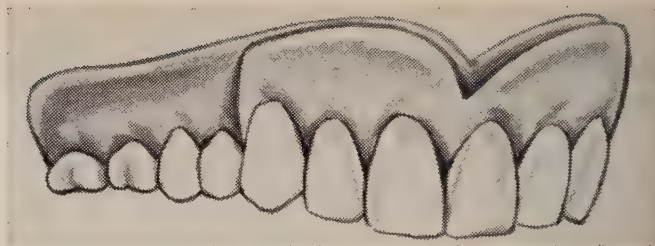
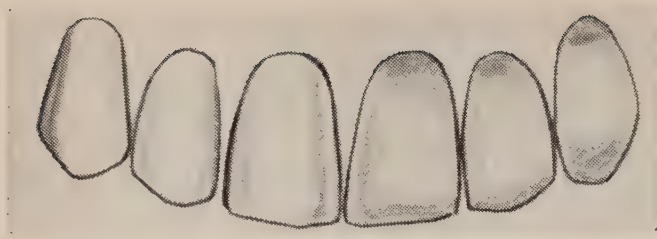
1. Ash, C. L. Oral cancer; a twenty-five year study. *Am. J. Roentg.* 87:417, 1962.
2. Snedecor, G. W. Statistical methods. Ed. 5. Ames, The Iowa State College Press, 1956.
3. Archer, W. H. and Morris, R. D. Survey of oral carcinoma at the Columbia-Presbyterian Medical Center. *Am. J. Orthodont. & Oral Surg.* 32: Sec. Oral Surg. 338, 1946.

4. Easson, Eric. Radiotherapy in oral cancer, 1932/1962. *Brit. D. J.* 115:239, 1963.
5. Gibbel, M. I., Cross, J. H. and Ariel, I. M. Cancer of the tongue. A review of 330 cases. *Cancer* 2:411, 1949.
6. Gardner, A. F., Hamburger, S. and Love, S. Oral carcinoma: analysis of one hundred and eighty-nine cases. *J.A.D.A.* 66:456, 1963.
7. Jorstad, L. H. Diagnosis, treatment and prognosis of carcinoma of buccal mucosa. *South. Med. J.* 35:970, 1942.
8. Fletcher, G. H. and MacComb, S. Radiation therapy in the management of cancers of the oral cavity and oropharynx. Springfield, Ill., Thomas, 1962.
9. Ackerman, L. V. and Del Regato, J. A. *Cancer*. Ed. 3. St. Louis, Mosby, 1962.
10. Sage, H. H. Oral cancer and the family dentist —Part I. Pre-cancer and early cancer of the mouth. *New York J. Den.* 30:5, 1960.
11. Shafer, W. G., Hine, M. K. and Levy, B.M. A textbook of oral pathology. Ed. 2. Philadelphia, Saunders, 1963.
12. Castigliano, S. G. and Rominger, C. J. Distant metastasis from carcinoma of the oral cavity. *Am. J. Roentg.* 71:997, 1954.
13. Tiecke, R. W., Stuteville, O. H. and Calandra, J. C. Pathologic physiology of oral disease. St. Louis, Mosby, 1959.
14. Gardner, A. F., Lilley, D. E. and Simmons, A. H. Study of carcinoma of the oral cavity. *J. Canad. D. A.* 29:7, 1963.
15. Ackerman, L. V. Verrucous carcinoma of the oral cavity. *Surgery* 23:670, 1948.
16. Tiecke, R. W. and Bernier, J. L. Statistical and morphological analysis of four hundred and one cases of intraoral squamous cell carcinoma. *J.A.D.A.* 49:684, 1954.
17. Stoddart, T. G. Conference on carcinoma of the lip. Held at the Ontario Cancer Foundation, Ottawa Clinic, Toronto 1962-1963.

124 Edward Street

This Memorial Tower is a landmark near Halifax, site of the CDA Convention in June. Located on the shore of the North-West Arm, the tower was built in 1908 to commemorate the beginning of parliamentary government in Canada in 1758. It was in that year general elections were held in Nova Scotia — the first step in obtaining self-government for all British possessions. The site for the tower was donated by Sir Sandford Fleming, the inventor of Standard Time.





Aesthetics in ceramics

S. R. Katz, DDS, Winnipeg, Manitoba

Some of the requirements for aesthetic porcelain jackets and porcelain bonded to metal castings are reviewed. The effective use of contour and colour to simulate natural teeth is described. Other methods for the treatment of space, crowded and malposed teeth are also presented.

■

On expose quelques-unes des méthodes à suivre en vue de réaliser des coiffes de céramique et des restaurations de céramique sur métal. On souligne l'importance de la forme et de la couleur dans l'imitation des dents naturelles. On décrit en outre certaines méthodes visant à rectifier des défauts esthétiques: diasthèmes, malposition ou chevauchement.

A part of this picture is the beautiful mouth and the inviting smile that so many people try to emulate. Beautiful teeth have become a status symbol, a love symbol, and a symbol of success.

This is a mixed blessing for the dentist. On the one hand he welcomes the discriminating patient who appreciates the excellence of an aesthetic restoration. But on the other hand he must also contend with patients who harbour preconceived notions of unattainable results. Some people expect to have their entire appearance changed by ceramic crowns or by an anterior bridge. We know this cannot be done, and it is important to acquaint patients with the limitation of this type of restoration. The primary considerations in any fixed prosthesis are accuracy, proper construction and thorough understanding of the gnathological mechanism. Most patients are either unaware of these requirements or take them for granted. But all patients demand an aesthetic result. No matter how technically perfect the restoration may be, if it does not correspond to the image conceived by the patient, it is to all intents and purposes a failure.

Magazines, television and advertising vividly portray the importance that our society attaches to personal appearance. Dentistry has not escaped this influence.

The questions that preoccupy the patients are (1) how much will it cost?, (2) how can I pay for it?, (3) will it look natural? The first two questions can be readily answered. A reply to the third question, however, is based on an appreciation of aesthetics. To answer this question the dentist must be thoroughly familiar with (1) the face and related structures, (2) materials in current use, (3) tooth preparation, (4) tooth form, (5) colour, (6) management of spaced teeth, (7) management of crowded teeth, (8) principles of optical illusion, and (9) the employment of auxiliary appliances.

FACE AND RELATED STRUCTURES

Harmony is the key to a life-like restoration. When individually different components combine to form a consistent and pleasing whole, there is harmony. To be truly aesthetic, the restoration must be a part of the patient. It must blend into the oral environment and not advertise its presence. The dentist must therefore observe the general shape of the patient's features and bony structure. People are either delicate, intermediate or vigorous in appearance. Notice should be taken of the skin—whether it is coarse or smooth—and of the colour and texture of the hair. These are important features because just as a man's build is definitely masculine, so should his smile be masculine. For example, broad maxillary lateral incisors amplify the appearance of masculinity, whereas narrow maxillary lateral incisors tend to suggest the appearance of femininity. Again, skin that is coarse should be matched by teeth with heavy labial surfaces; smooth skin by teeth with smooth labial surfaces.

Loss of vertical dimension causes a deepening of the nasal labial and mental labial sulci, collapse of the orbicularis oris, and a flattening and seeming loss of the lips. These conditions can often be alleviated by the restoration of normal vertical dimension, proper placement of the teeth (usually 4-5 mm. anterior to a residual ridge), and judiciously placed auxiliary appliances. But unfortunately we cannot build up these areas as much as

our patients would like us to. We must be constantly aware of this and patients should be informed of the limitations.

Another major reason for this close scrutiny is the determination of the patient's physiological age. We must avoid the incongruity of using an inappropriate shade for a patient whose recorded age is 25 but who looks 20 years older. It is impossible to make this patient look his chronological age by using very 'young' teeth. One must also be wary of the person who asks the dentist to fill out facial concavities and remove creases attributable to age. Very often the dentist, in his anxiety to please the patient, tends to promise that which he cannot produce. This only aggravates the numerous problems of everyday practice. In terms of aesthetics, knowledge of surface facial musculature is far more important than knowledge of the insertion and origins of the muscles of mastication. It is important (1) to know how the lips normally look (whether they are long or short) because the prosthesis may possibly restore the appearance of these structures, and (2) to know the position of the teeth before they were extracted (anterior teeth should be replaced in this position—not just along the residual ridges as so many technicians do).

MATERIALS

The chief component of dental porcelains is feldspar, a flux. These porcelains are therefore glasses rather than porcelains. Very briefly, dental porcelain is composed of feldspar (approximately 75 per cent), silica [quartz] (20 per cent), and kaolin (approximately 5 per cent).¹ Feldspar melts first and reacts with the other constituents to produce the final form. Silica gives body to the porcelain during the firing and increases the strength and translucency of the final product. Kaolin increases the strength and opacity of the fired material.

Dental porcelains possess the advantages and drawbacks of glass—its lovely appearance and also its tendency to fracture. The thermal coefficient of expansion (TCE) of the glaze should, ideally,

be equal to that of the porcelain to which it is applied. If the glaze has a higher TCE than the body of the porcelain, it will cool under tension. This results in surface crazing. If, on the other hand, the TCE of the glaze is considerably less than that of the body, compressive stresses may develop cracks in the glaze. This phenomenon is known as 'peeling.' In either case the glaze may gradually erode in the mouth. A smooth surface on the porcelain is always necessary, particularly where the porcelain contacts soft tissue. Since it is virtually impossible to match the TCE of the body and the glaze precisely, a desirable glaze should probably exhibit a TCE slightly below that of the body.

Porcelains must be baked to an even thickness in order to achieve maximum strength. Porcelain crowns withstand fracture best if they are properly supported by maximum tooth structure.

Metal castings with bonded porcelain crowns are becoming very popular. Johnston et al² assert that:

1. Only gold alloys can be routinely cast to fit; with investments now being used, the fit of restoration can be predetermined.

2. Veneers bonded to gold alloys have far fewer checks than those applied to other kinds of castings.

3. These checks are reduced when the porcelain and the gold alloys have been balanced in thermal expansion.

4. With any combination of materials, shading depends upon individual skill and exactness in shaping the preparation to provide proper space, thickness and margins for the completed veneer. Frequently, staining is necessary to cope with individual problems. However, even though the colour matches are not perfect, almost any shade or contour can be produced to harmonize with the environment.

Johnston states that the best combination of materials is Improved Ceramco No. 1 alloy with Ceramco porcelain. The physical properties of the metal compare favourably with those of the gold alloys used in the construction of fixed bridges without bonded veneer. Bonding characteristics of the material are quite good. The bonding strength is sufficient, and is greater than that of the porcelain itself.

Service in the mouth has also been very satisfactory.

TOOTH PREPARATION

An even distribution of porcelain results in optimum aesthetics and strength. Allowance must be made for an appropriate thickness of porcelain when preparing a tooth for a porcelain crown.

This requirement is less important when preparing a tooth for the reception of a metal casting with bonded porcelain veneer. Nevertheless, a specific type of tooth reduction is necessary. For shading and contour there must be a cervical shoulder on the labial or buccal half of the tooth and a chamfer finishing line on the lingual half. It is necessary to remove more tooth structure from the labial side for a metal bonded porcelain crown than for a pure porcelain jacket. There should be a minimum 1.5 mm. clearance where opposing teeth occlude. I prefer at least 2 mm. clearance. It is best if the incisal clearance on an anterior tooth is 2 mm.; this permits at least 0.5 mm. of metal supporting a minimum of 1.5 mm. of porcelain. If possible, the shoulder for a porcelain bonded to metal crown should be at least 1 mm. wide. This enhances its strength and aesthetics.

The depth of the shoulder for a porcelain crown preparation has always been a controversial issue. In my opinion the shoulder should only extend to the depth that can be reached with the least laceration of the free gum margin—about 1 mm. below the gingival margin. Extending the depth beyond this level often defeats the purpose of achieving an invisible junction line. It is almost impossible to penetrate deeply under the free gum margin without lacerating the tissue. Scar tissue results and this tissue, by contracting, will expose the shoulder.

Sharp line angles must be avoided in a porcelain jacket preparation. They cause fractures. The shoulders should be planed with hand instruments. Unsupported enamel rods break down in this area, resulting in marginal leakage with subsequent decay and loss of the crowns and teeth.

FORM

From an aesthetic standpoint, crowns must have good form. The shade may be a little off or the tooth may not be in perfect position without ruining the result. However, if the tooth is not properly contoured, it will stand out like a sore thumb. The dentist who desires to achieve maximum aesthetic results should spend a good deal of his time sculpturing these teeth in their proper environment. A technician should never completely finish porcelain jackets on the cast.

We are familiar with labial, lingual, mesial, distal and incisal surfaces but we tend to forget that these surfaces are not separate entities. They are joined by connecting planes. It is these joining surfaces, properly shaped, which make for a more beautiful result rather than the rather unexciting static moulds that are so commonplace.

Ceramic restorations must never be completed without first being inspected in the mouth in the 'biscuit bake.' Ceramics entails sculpturing and, like sculpturing, one must 'walk around' the work to observe it from every possible angle. Relationships with other teeth and with the structures of the face must be checked. Whether the dentist inserts a single ceramic crown or a 10 tooth metal and porcelain bridge, the aesthetic qualities of the restoration should be his own expression, not that of the technician.

One further point deserves emphasis in this connection. Dentists tend to accept what manufacturers of artificial teeth claim is the 'natural look.' Yet, presently available artificial stock teeth approximate but do not match natural colour and form. Dentists should become far more discriminating. They should demand better quality in artificial teeth from the manufacturers.

COLOUR

Attractive teeth contribute to a pleasant smile. They must be delicately formed and coloured to match the owner's physiological age. A subtle youthful quality

can be imparted to a middle-aged woman's smile by the proper use of colour. Young natural teeth have a bluish incisal edge and a fresh unmarred appearance. Mature teeth lose this bluish edge, but gain colour and character instead.

The relation of teeth to one another in the arch affects the apparent size and colour saturation of individual teeth. A prominent anterior tooth creates an illusion of lighter shade and increased size. Teeth possessing a lot of orange and yellow tend to be more prominent and larger. Teeth that are predominantly grey tend to recede in the arch and diminish in size. A retruded tooth creates an illusion of darker shade and diminished size. Natural anterior teeth usually darken as the patient ages. They also acquire more solid shades as the translucent incisal edges wear away. In other words, they become more opaque. They certainly do not possess the incisal translucency found in artificial anterior teeth. Darker shading of the gingival areas alone does not yield the darker and more solid shadows necessary for elderly patients.

The selection of colour is the dentist's responsibility and should not be left to the discretion of the laboratory technician. A written prescription containing a proper description and a diagram showing the various shades required should be sent to the technician along with models or impressions. Divide the tooth into three parts—gingival, body and incisal—and select the colour for each part separately, covering the other two. It is important to use a porcelain shade guide for porcelain jackets because there is a subtle difference between porcelain and plastic shade guides. Several shade guides may be required in order to achieve the best result.

The most important aspect of aesthetics is the relationship between tooth colour, age and complexion. It is important to realize that there is no monotone colour in nature. Nature always exhibits characteristic colour gradation from central incisors to lateral incisors to cuspids. In middle age there is a saturation of brownish-yellow and orange in the central incisors. Lateral incisors often have an overall grey colour, whereas cuspids usually have a saturation of brownish-yellow. In the

young, the colour gradation from central incisors to lateral incisors to cuspids is more subtle. At this age—the middle twenties, for example—the teeth are definitely on the light side, but still there is no monotone. It is this lack of colour gradation to which I object in manufactured teeth.

Nature's most perfect examples of beauty exhibit definite colour correlation between skin tone, colour of the hair and eyes and the shades of the teeth in the natural dentition. The average observer does not see the many variations in skin colour or tooth colour. He perceives people as having a ruddy complexion, others as being sallow or olive-skinned. He automatically blends the many minute tone variations into one overall impression. But nature seldom produces any flat monochromatic colours. Ceramic crowns or bridges that blend with their environment must likewise exhibit the colour patterns found in healthy, natural teeth. They must blend harmoniously with the basic complexion and coloration of the patient.

The patient's complexion is the best guide in selecting the most desirable tooth colour. The skin is classified according to the proportion of three colours—red, yellow and grey. As a general rule, the most pleasing harmony between teeth and skin results when the enamel contains the same colour that predominates in the skin. It sometimes requires courage to put in the red and yellow and orange which are required for a natural looking restoration. Individual porcelain crowns, particularly for central incisors, often present a colour problem. Teeth with distinct coloration are easy to duplicate. It is the teeth with very subtle coloration, as in young people—with very high translucency and subtle greys—that create difficulty.

Chairside staining can be valuable in producing lovely results. It is a relatively simple procedure. The finished porcelain crown is placed on the prepared tooth and suitable low fusing stains are painted on with a fine sable brush to match the colours present in adjacent teeth. This can only be done successfully when the crown is in its proper environment. A porcelain oven is required in the

office, but this investment quickly pays for itself with the lovely results that can be achieved. The entire procedure takes but a few minutes. In this way the dentist soon becomes aware of the orange and grey present in older patients; the brown, yellow and pink in the younger patients.

SPACED TEETH

Young patients often ask a dentist to close an anterior space, particularly a large diastema between the central incisors. Disastrous results ensue from attempts to close this space by using oversized central incisor crowns. The only solution is to prepare sufficient anterior teeth and slightly enlarge each crown. The larger the diastema or the space, the greater the number of teeth that must be prepared. This provides the required leeway to enlarge each tooth towards the median line. The eye readily accepts this gradual enlargement. It is not always necessary to close these spaces entirely. In fact, patients who have had large spaces all their lives will accept smaller spaces more readily than a completely closed arch.

CROWDED TEETH

Patients with crowded teeth present a different problem. Though many of these cases appear hopeless at first, it is often surprising what can be done. Good study casts and radiographs are mandatory. It is important to know the exact location of the pulp horns in order to determine how much tooth structure can be removed. It is essential to remove a maximum amount of tooth structure to provide as much room as possible in which to manoeuvre. After careful tooth reduction, there is often more room than might be anticipated. Thus, by making each crown a little smaller and subtly changing the mould, a very pleasing aesthetic result is achieved. Normal central incisors can often be used by employing smaller lateral incisors and, particularly, smaller cuspids. Because of

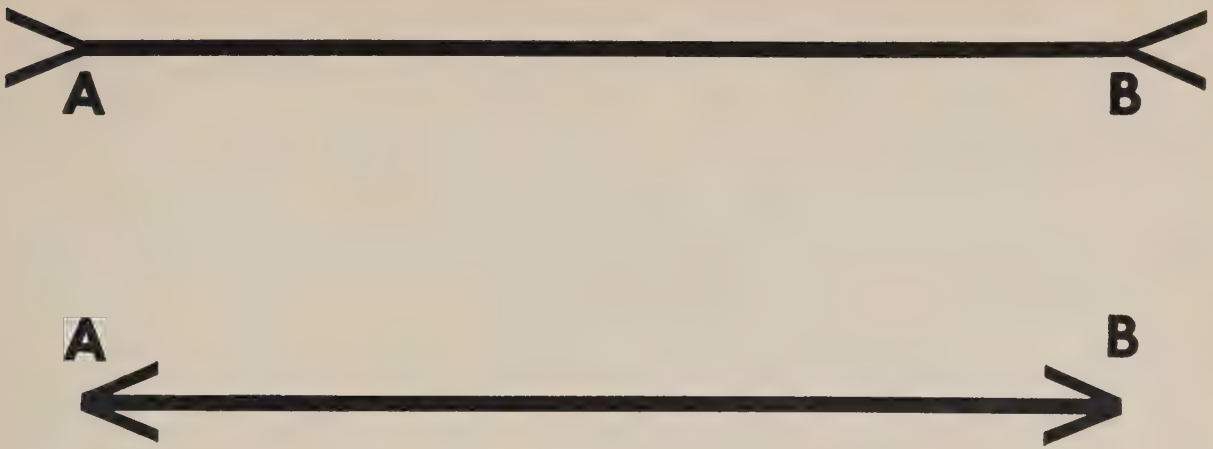


FIGURE 1 Example of optical illusion. Both horizontal lines are exactly the same length but the auxiliary line creates the illusion that one horizontal line is longer than the other.

their position in the corner of the arch, it is often possible to substitute much smaller replacements for the original natural cuspids.

MALPOSED TEETH

A single central incisor that is lingual to the other anterior teeth often creates the impression that the entire front of the mouth is crooked. Very often this can be corrected by the insertion of a single jacket crown built out labially to proper alignment. In these cases it is often necessary to reshape the other central incisor slightly. But when teeth are so prominent, rotated or retruded that they cannot be adequately prepared without risk of pulp exposure, it is often necessary to remove the pulp. There are a good many in-

stances when the results justify these means. There are also conditions which necessitate the rebuilding of the remaining tooth with pins and castings so as to allow for better alignment.

OPTICAL ILLUSION

Figure 1 illustrates an example of optical illusion. Both horizontal lines are exactly the same length but the auxiliary lines at each end create the illusion that one line is longer than the other. This principle can often be used in mouths that are either too broad or too narrow in appearance. Six anterior porcelain crowns can be coloured and shaped to make a broad mouth seem smaller and a narrow mouth seem larger. To accomplish this, the technician and the dentist must un-

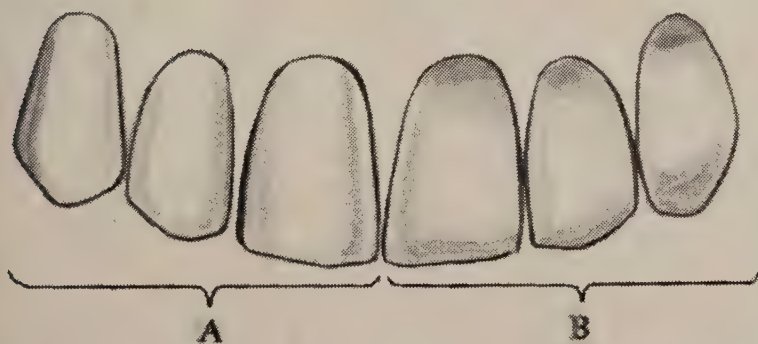
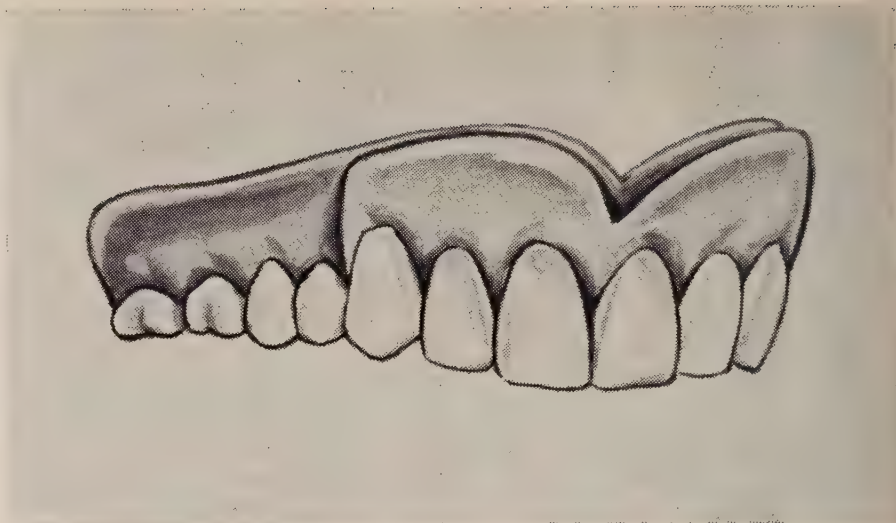


FIGURE 2 Shading the mesial and distal labial aspects of the teeth on the left and leaving the vertical centre of each tooth light creates an illusion of longer teeth and a narrower arch (A). Shading the gingival and incisal portion of the teeth on the right and leaving the horizontal centre of each tooth light creates an illusion of shorter teeth and of broader arch (B).

FIGURE 3 Anterior fixed bridge. The natural teeth were lost some time ago and resorption of the alveolar process has occurred. The anterior teeth of the bridge are placed in proper alignment without regard for the gap between the necks of the teeth and the residual ridge. A removable plastic form fills this gap, fits snugly around the necks of the teeth and makes them appear shorter.



derstand the effects of shading. Basically, light colours confer prominence while dark colours recede into the background.

As illustrated in Figure 2, shading the mesial and distal labial aspects of the teeth on the left and allowing the vertical centre of each tooth to be lighter creates an illusion of longer teeth and a narrower arch (A). On the other hand, shading the gingival and incisal portion of the teeth on the right and allowing the horizontal centre to stay light creates the illusion of a broader arch and shorter teeth (B).

AUXILIARY APPLIANCES

Replacement of upper central and lateral incisors with a fixed bridge, long after the loss of the natural teeth and resultant resorption of the alveolar process, can pose a problem. I place the anterior teeth of the bridge in proper alignment without regard for the gap between the necks of the teeth and the residual ridge. I also fabricate a removable plastic form that fits snugly around the necks of the teeth like the anterior portion of a denture. This fills the gap and makes the teeth

look shorter by covering the necks. The form is held in place by the upper lip and patients have very little difficulty retaining it (Figure 3).

ADVANTAGES AND DISADVANTAGES OF CERAMICS

There is no doubt that maximum aesthetic results can be achieved with porcelain jackets. However, these restorations are easily fractured and the patient should be made well aware of this hazard. Porcelain bonded to metal is less susceptible to fractures, but does not possess the exciting colour and natural qualities of porcelain crowns. Each has its place; only full knowledge of what they can do for the patient and the dentist will result in optimum use.

Presented at the first meeting of the Canadian Academy of Restorative Dentistry, Montreal, May 30, 1965.

1. Skinner, E. W. The science of dental materials. Ed. 4. Philadelphia and London, Saunders, 1954.
2. Johnston, J. F., Dykema, R. W., Mumford, George and Phillips, R. W. Construction and assembly of porcelain veneer gold crowns and pontics. J. Pros. Den. 12:1125, 1962.

139 Carmen Avenue

The legal place of the dentist in an Ontario public hospital

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Proposed amendments to existing hospital legislation are recommended. If approved, they will permit the admission of patients on the joint order of a dentist and of a medical practitioner who are members of the hospital staff. Other proposed amendments would remove the requirement for a physician's counter signature on orders or prescriptions for in-hospital treatment issued by a dentist.

■

Le présent rapport expose les amendements proposés à la législation hospitalière actuelle. Leur approbation permettra l'hospitalisation de malades à la demande d'un dentiste et d'un médecin, tous deux membres du corps médical de l'hôpital. D'autres amendements visent à éliminer la contresignature sur les recommandations et ordonnances formulées par un dentiste à l'intention d'un malade hospitalisé.

Physicians, no matter how well qualified they may be, are not entitled to practise their profession in any public hospital as a right which is conferred on them when

they graduate from an approved university, pass their Dominion Council examination and obtain a licence to practise in Ontario by paying the annual licence fee to the Ontario College of Physicians and Surgeons. Privileges to practise and operate within a given hospital must be delegated specifically to each individual doctor by the board of directors or board of trustees of the particular hospital in which the physician or surgeon desires to carry on his profession.

The situation is the same for dentists. When a person holds a certificate of licence under The Dentistry Act of Ontario he does not have a divine right to practise his profession in any public hospital. He is only *eligible* to be appointed to the dental staff of a hospital if the board of directors or trustees of that particular hospital considers such appointment desirable. The board normally makes such a decision after considering the recommendations of the credentials committee of the hospital and the chief of the hospital's department of dentistry, if the hospital has a chief of dentistry.

The chain of authority which permits a physician or dentist to work in a hospital comes from the Queen and the Imperial Parliament (by means of the British North America Act, 1867); through the Ontario Legislative Assembly (by means of The Public Hospitals Act, R.S.O. 1960,

Chapter 322); through His Honour the Lieutenant Governor in Council (by means of the Regulations under The Public Hospitals Act); through the board of directors of the hospital (by means of the by-laws of the hospital which have been authorized by the Regulations under The Public Hospitals Act and have been approved by His Honour the Lieutenant Governor in Council under the provisions of subsection 3 of section 8 of The Public Hospitals Act).

Any procedure performed in a public hospital by a physician or dentist, which he is not privileged and empowered to do under this chain of authority, may leave him open to a court action and may also make the hospital board of trustees liable for his actions.

By undertaking to govern and manage a public hospital, the board of trustees holds its hospital out to the public as being adequately equipped and adequately staffed with physicians, dentists, nurses and other hospital personnel who are properly and legally qualified and well experienced to perform the particular operations, procedures and other duties which they are respectively authorized by the board to carry out in its hospital. It is this responsibility, this heavy onus on the board to make certain, as far as is humanly possible, that its hospital has the best staff available which gives the board the right and the duty to deny hospital privileges to one physician or dentist and give them to another.

The big problem has always been, and still is, to have proper and adequate authority written into The Public Hospitals Act, the Regulations thereunder and into hospital bylaws for the practice of dentistry in public hospitals in Ontario. I began in 1951 to attempt to have some amendment made to The Public Hospitals Act which would at least recognize the fact that the knowledge and skill of dentists are necessary for the proper treatment of many hospital patients, and the fact that dentists had been practising their profession in many hospitals for many years without the protection of specific legal authority to do so.

With assistance from W. J. Dunn, D. W. Gullett, R. G. Ellis and several others of

the dental profession, in 1959 we were finally able to have the word 'dental' introduced into two provisions in The Public Hospitals Act. Prior to The Public Hospitals Amendment Act, 1959, there was no mention made of dentists or dental care in any public hospitals legislation in Ontario.

Since 1959, the definition of 'treatment,' which appears in clause (q) of section 1 of The Public Hospitals Act, reads as follows:

"'Treatment' means the maintenance, observation, medical care and supervision, and skilled nursing care of a patient and, if dental service is made available in a hospital by its board, includes the dental care and supervision of the patient."

The second provision comes in section 17 of the Act which, since 1959, reads as follows:

"17. Subject to any existing agreement relating thereto, every hospital receiving provincial aid shall provide such facilities for medical students and dental students as the regulations require."

As yet, no regulations have been made to cover the facilities for medical and dental students in teaching hospitals but at least the dental students are recognized in the legislation and the authority exists for making regulations governing dental students whenever His Honour the Lieutenant Governor in Council is of the opinion that such regulations are necessary or desirable.

We now come to the consideration of the Hospital Management Regulation 523 of Revised Regulations of Ontario, 1960, made under The Public Hospitals Act. Regulation 523 contains the provisions under which the members of the medical staff of each Ontario public hospital are to be appointed and organized, and are to function. Regulation 523 is the one which should also contain provisions under which the members of the dental staff of a public hospital should be appointed and organized, and should function. However, if you look carefully you will find the word 'tooth' only mentioned once in subsection 3 of section 34 of Regulation 523 as one of 10 tissues which, if removed from the body of a patient in a public hospital, need not be sent to a laboratory

for pathological examination "unless the surgeon desires an examination and report." 'Dentist' is not referred to at all.

In some respects the provisions of Regulation 523 should be amended to bring them up to date from a medical standpoint and, in October 1962, the Ontario Hospital Services Commission convened a joint meeting of OHSC, the Ontario Medical Association and the Ontario Hospital Association to consider what amendments should be made. This joint committee has met periodically since 1962 and recently it seems that there will be agreement among the interested bodies on certain amendments which will eventually be recommended by OHSC to the Minister of Health so that the regulation amendments can be made by the Lieutenant Governor in Council.

As the joint committee meetings progressed, representatives from the Canadian Council on Hospital Accreditation, the Ontario College of Physicians and Surgeons and the Ontario Department of Health joined the discussions. In November 1962, I had introduced for consideration the topic of dental services in hospitals, but it was not until Dr. Dunn wrote to OHSC in May of 1963 that he and Dr. Antoni were invited to attend the meeting of the joint committee held on November 15, 1963. Drs. Dunn and Antoni presented a brief on dental services in hospitals and Dr. Dunn has recently written the chairman of OHSC to request the expediting of the making of the dental amendments to Regulation 523.

As a result, I hope and expect the following amendments will, at some time in the not too distant future, be made to Regulation 523 under The Public Hospitals Act:

1. Dental staff will be defined to mean "the dentist or dentists to whom the board has granted the privilege of attending patients in the hospital in co-operation with a member of the medical staff."

2. "Dentist" will mean a person holding a certificate of licence under The Dentistry Act.

3. The board of directors or trustees of a public hospital will be authorized to provide in the hospital bylaws for the appointment and functioning of a dental staff and of a chief of the dental staff,

and for "a method of determining the professional privileges granted to each dentist on the dental staff."

4. If a hospital has not already passed bylaws in respect of the administrative staff, dental staff or medical staff, it will have to pass such bylaws "as are required by the Commission in a written notice to the hospital and submit them to the Commission not later than six months after the notice is received by the administrator of the hospital."

5. "No person shall be admitted to a hospital for treatment by a dentist except

- (a) when the dentist is of the opinion that it is necessary for the person to be admitted to the hospital as an in-patient; and
- (b) on the joint order of the dentist and of a medical practitioner who are members of the staff of that hospital."

6. At present, a dentist has no legal authority to write a prescription or other order for treatment for a patient in hospital. If the dentist wishes a medication to be given or some other order to be carried out in hospital, strictly speaking, that prescription or order must be countersigned by a medical practitioner on the medical staff of the hospital to be legal. Dentists should therefore be mentioned in section 35, which authorizes the giving of orders for treatment. I believe that the new section 35 should read somewhat as follows:

"35.

- (1) All orders for treatment shall be
 - (a) in writing and signed by the attending physician or attending dentist on a paper attached to the medical record of the patient or in a book designated for physicians' orders; and

(b) dated and signed by the attending physician or attending dentist, or by a medical practitioner authorized by the attending physician or a dentist authorized by the attending dentist; but an attending physician or a medical practitioner authorized by him, or an attending dentist or a dentist authorized by him, may dictate by telephone orders for treatment to a person designated by the administrator to take such orders.

(2) The person to whom an order for treatment has been dictated shall transcribe and sign it and endorse thereon the name of the medical practitioner or dentist who dictated the order and the date and time of receiving the order.

(3) When a medical practitioner or dentist has dictated an order by telephone, he shall sign the order on his first visit to the hospital thereafter."

At present a dentist cannot legally admit a patient to or discharge a patient from a public hospital in Ontario. Section 46 of Regulation 238 of Revised Regulations of Ontario, 1960, made under The Hospital Services Commission Act, provides in part that "an insured person is not entitled to insured services unless

- (a) he has been admitted as an in-patient on the order of a duly qualified medical practitioner; or
- (b) he has been received in the hospital and examined as an out-patient by a duly qualified medical practitioner and treated as an out-patient, if necessary."

In other sections of Regulation 238 under The Hospital Services Commission Act, and in sections of Regulation 523 under The Public Hospitals Act, it is made clear that a patient can legally be admitted to and discharged from a public hospital only by a duly qualified medical practitioner. But if the foregoing amendments are made to Regulation 523, it will be possible for a dentist to admit a patient to a public hospital by means of a joint order from the dentist and a physician who is a member of the medical staff of the hospital.

We can now consider the hospital bylaws, the local level of legal authority for procedures performed by dentists in the hospital.

In outlining the chain of authority under which a dentist can legally practise his profession in a public hospital in Ontario, I made passing reference to subsection 3 of section 8 of The Public Hospitals Act. Subsection 3 provides: "No bylaw or amendment to or revision of a bylaw has any force or effect until it is approved by the Lieutenant Governor in Council upon the recommendation to the Minister of the Commission."

The bylaws of a hospital, after they have been approved by His Honour the Lieutenant Governor in Council, are, so far as the hospital for which they are approved, its staff and its patients are concerned, a part of the law of our province. The provisions of Regulation 523 apply to every public hospital in Ontario. Bylaws of a hospital, when approved under subsection 3 of section 8 of The Public Hospitals Act, apply, with the same legal force as Regulations made under The Public Hospitals Act, to the hospital for which they are approved and to the patients and staff of that hospital.

When carefully drawn, approved bylaws can be a very great help in avoiding medico-legal problems and lawsuits for a hospital board of trustees and the members of its staff. In the case of some accident or other misadventure in the hospital, if a member of the hospital staff has conscientiously acted in accordance with provisions in bylaws that have been approved for his hospital, he is in a much better position, from the standpoint of his legal defence, than if the misadventure could be considered to have happened as the result of his performing some act not authorized by the approved hospital bylaws or if the hospital does not have any approved bylaws.

It is the responsibility of the board of directors or board of trustees of each hospital to evolve bylaws which are supplementary to The Public Hospitals Act and to provisions in Regulation 523, and which are applicable to the particular needs of its own hospital. Therefore, it follows that it is neither necessary nor desirable to include in the bylaws of a public hospital any provisions which already exist in either The Public Hospitals Act, in the Regulations made under that Act or in any other statute or regulation. Similarly, no summary or interpretation of either statute or common law should be attempted in hospital bylaws. Also, it is important not to attempt to include anything in bylaws by reference only. For example, no code of ethics can be incorporated by means of reference only into hospital bylaws in Ontario. The reason for this is that His Honour the Lieutenant Governor in Council cannot give approval, and therefore the force of law, to a set of

provisions of which he does not have specific and detailed knowledge and which may be changed from time to time without his knowledge and consent by an organization over which he can have no control. Furthermore, it should not be necessary to repeat in hospital bylaws ethical provisions to which professional personnel have committed themselves by their professional obligations. However, if it is considered absolutely necessary to include any ethical provision in a set of bylaws, such provision must be set out fully and in detail for the consideration of His Honour the Lieutenant Governor in Council. Such a provision will receive approval if it is not contrary to any statute, regulation, common law principle or to public policy.

It is also the responsibility of the board of trustees to see that any bylaws or amendments to bylaws are submitted in triplicate to the Ontario Hospital Services Commission for consideration and, if satisfactory, for approval by His Honour the Lieutenant Governor in Council under subsection 3 of section 8 of The Public Hospitals Act. Submitted bylaws must bear the corporate seal of the hospital and must be signed by the signing officers of the hospital.

In 1951 I first drafted a suggested model set of bylaws for a dental service in Ontario public hospitals. Copies of my 1965 edition of this model are available when requested by any Ontario hospital that wishes assistance in establishing a dental service, or in properly authorizing a dental service already in existence. Any pro-

visions copied from my model will be suitable to receive the approval required in Ontario from His Honour the Lieutenant Governor in Council.

Even before we succeeded, in 1959, to have the practice of dentistry officially recognized in The Public Hospitals Act, I recommended for approval any hospital bylaws that properly provided for a dental staff. Such bylaws were approved under the general authority that a hospital board of directors has to make bylaws concerning the care and treatment of patients in its hospital.

You may note that nothing has been said or done, as yet, about making provision in Regulation 523 for dental services in the out-patient departments of Ontario public general hospitals. I merely wish to mention that this subject is in the back of my mind and will be brought forward when our legislation and regulations have progressed sufficiently to make its appearance opportune. After some 15 years of persistent effort, I feel that we can now say that we are on the verge of having dental services in Ontario public hospitals legally and properly recognized and authorized. It has been a long struggle but I would like you to know that I intend to continue my efforts on behalf of the dental profession in Ontario.

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*Medico-legal consultant, Ontario Hospital Services Commission.

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25 Russell Hill Road

Board of Governors • The Board of Governors of the Canadian Dental Association is composed of members selected by dental organizations in all 10 provinces. The Board meets annually just before the national convention of the Association. Any member of the Canadian Dental Association may participate in the Board's annual meeting. Canadian dentists are urged to avail themselves of this opportunity to participate in the affairs of their profession.

1963 Survey of Dental Practice

5. Professional expenses

Enquête de 1963 sur la profession dentaire

5. Frais professionnels

Bureau of Economic Research

Bureau des recherches économiques

The Survey of Dental Practice questionnaire asked private dental practitioners to list the expenses incurred in operating their practices in 1963. Responses from part-time salaried dentists practising less than 30 hours a week and from dentists not in practice for the whole of 1963 were excluded from mean average expenses.

SALARIES LARGEST EXPENSE ITEM

The largest item among the expenditures of the average Canadian dentist was salaries and commissions paid to dentists, auxiliaries and any other persons employed by the private practitioner. One quarter of total expenses was paid in salaries in 1963. Among the provinces, the highest percentage of expenses paid in salaries was 28 per cent reported by British Columbia dentists. At the other extreme, salary payments in Prince Edward Island and New Brunswick were only 14 to 15 per cent of total expenses. In the Atlantic provinces, Quebec and

Le questionnaire de l'enquête sur la profession dentaire demandait aux praticiens en exercice privé de dresser un état des dépenses entraînées par l'exploitation de leur cabinet. Les réponses des dentistes salariés exerçant moins de 30 heures par semaine et celles des dentistes qui n'ont pas exercé pendant toute la durée de 1963 ne sont pas entrées dans le calcul des frais moyens.

LES PLUS GROS FRAIS SONT LES SALAIRES

Le plus lourd chapitre des dépenses du dentiste canadien moyen est celui des salaires et commissions payés par le praticien privé aux dentistes, aux auxiliaires et aux autres personnes à son emploi. En 1963 les salaires ont représenté le quart du total des frais. Parmi les provinces, le pourcentage des frais de salaires par rapport au total des dépenses est le plus fort en Colombie britannique avec 28 pour cent tandis que son chiffre le plus faible est de 14 à 15 pour cent dans l'Île du Prince-Edouard et le Nouveau-

Manitoba, commercial dental laboratory charges and not salaries took the largest proportion of total expenses.

Average salaries paid by Canadian dentists amounted to \$3,153. British Columbia, Alberta, Saskatchewan and Ontario dentists all paid average salaries in excess of \$3,400 while payments in Quebec, Nova Scotia, New Brunswick and Prince Edward Island were \$2,000 or less. All expenses for this last province were surprisingly low. The number of respondents from Prince Edward Island was quite small and it is possible that figures for this province are not reliable.

Seven of the provinces reported that average salaries had more than doubled in the past 10 years. Average salaries have also risen slightly as a percentage of total expenses. Part of this increase in salaries can be explained by the fact that dentists were employing more auxiliary personnel in 1963 than in 1953.

Average salaries generally increased with the size of community in which the dentist practised in 1963. They rose in two stages: (1) from \$1,281 for communities of under 1,000 people to \$2,962 for cities of between 15,000 and 25,000 people

Brunswick. Dans les provinces de l'Atlantique, le Québec et le Manitoba, la plus grosse part des dépenses par rapport au total des frais revient non aux salaires, mais aux frais de laboratoire dentaire commercial.

Le salaire moyen versé par les dentistes canadiens est de \$3,153. Dans la Colombie britannique, l'Alberta, la Saskatchewan et l'Ontario, le salaire moyen dépasse \$3,400, tandis qu'il est de \$2,000 ou moins dans le Québec, la Nouvelle-Ecosse et l'Ile du Prince-Edouard. Pour cette dernière province, toutes les dépenses sont étonnamment basses. Les réponses de l'Ile du Prince-Edouard ont été très peu nombreuses et les chiffres pour cette province ne sont peut-être pas représentatifs.

Sept provinces déclarent que leur salaire moyen a plus que doublé en 10 ans. Les salaires moyens ont aussi augmenté par rapport au total des frais. Cette progression des salaires s'explique en partie par le fait que les dentistes employaient plus de personnel auxiliaire en 1963 qu'en 1953.

En général, les salaires moyens augmentent suivant l'importance de la localité où le dentiste exerçait sa profession en 1963. Les salaires passent en deux étapes: (1) de \$1,281 pour les localités de moins de 1,000 habitants à \$2,962 pour les villes de 15,000 à 25,000 habitants; (2) de \$2,756 pour les villes de 25,000 à 30,000 habitants à \$3,987 pour les villes de 250,000 à 500,000 habitants. La moyenne retombe ensuite à \$3,383 pour les villes dont la population dépasse le demi-million.

Il est peu probable que les salaires soient plus bas dans les plus grandes villes

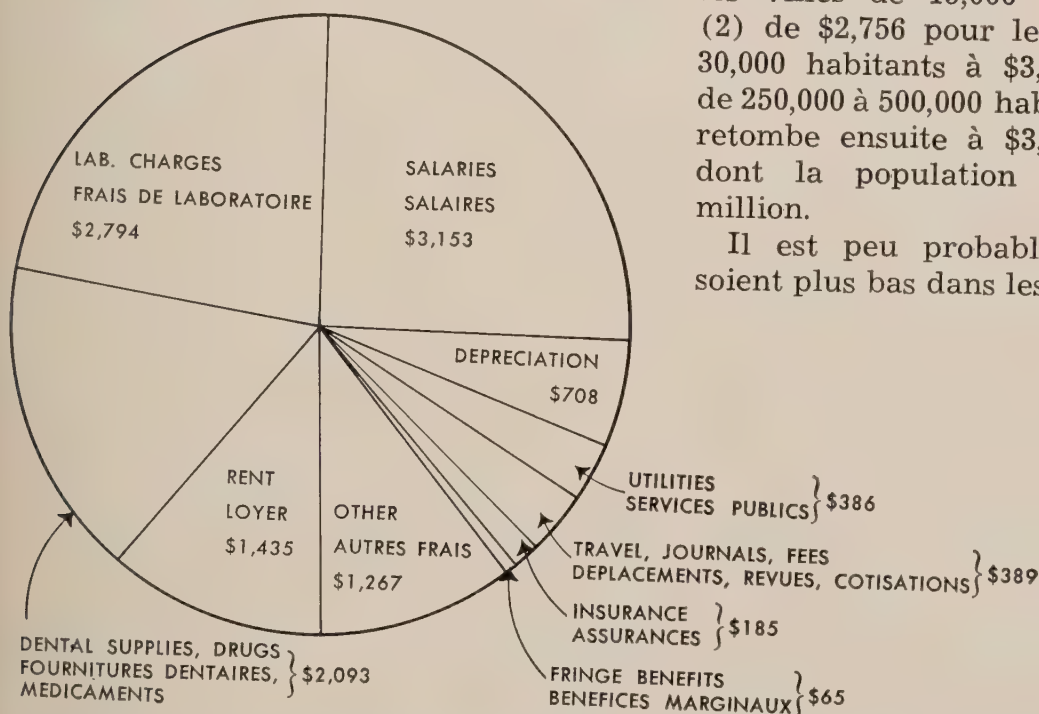


FIGURE 1 How the average dentist's expenses of \$12,475 are spent • Répartition des frais du dentiste moyen, d'un total de \$12,475.

Table 1 Average expenditures per reporting dentist by specified items of professional expense.

Item	Canada		Nfld.-T.-N.		P.E.I.-I.-P.-E.		N.S.-N.-E.		N.B.	
	\$	%	\$	%	\$	%	\$	%	\$	%
Office rent	1,435	11.5	1,352	10.2	540	7.7	998	11.1	1,155	10.8
Utilities	386	3.0	422	3.2	207	2.9	301	3.4	344	3.2
Insurance related to office practice	185	1.5	90	0.7	83	1.2	174	1.9	153	1.4
Commercial dental laboratory charges	2,794	22.4	3,042	23.1	2,586	37.0	2,026	22.6	3,097	29.0
Dental supplies, drugs	2,093	16.8	3,025	22.9	1,688	24.2	1,768	19.8	1,888	17.7
Salaries	3,153	25.3	2,557	19.5	977	13.9	1,844	20.6	1,632	15.3
Fringe benefits	65	0.5	65	0.4	5	0.1	33	0.4	33	0.3
Travel to professional meetings, society dues, journals, licence fees	389	3.1	446	3.4	283	4.1	316	3.5	412	3.9
Depreciation on dental and office equipment	708	5.7	472	3.6	178	2.5	471	5.3	611	5.7
All other expenses	1,267	10.2	1,704	13.0	444	6.4	1,020	11.4	1,348	12.7
Total	12,475	100.0	13,175	100.0	6,991	100.0	8,951	100.0	10,673	100.0

and (2) from \$2,756 for cities of 25,000 to 30,000 population to \$3,987 for cities of 250,000 to 500,000. The average dropped off sharply to \$3,383 for cities with populations of over half a million.

Salaries in these largest cities are unlikely to be less than in other cities. Dentists in cities of the largest size category had fewer patients and appointments and received smaller gross incomes than dentists in some smaller cities. It is possible, therefore, that dentists in cities of over 500,000 people did not have as large offices or as many employees as dentists in smaller centres. This is reflected in the figures these cities reported for average rent and salaries.

Salaries accounted for the largest proportion of the total expenses in all cities of over 30,000 inhabitants and in cities in the 15,000 to 25,000 population bracket. In all other city size categories, commercial dental laboratory charges occupied the first position among the expense items.

DENTAL LABORATORY CHARGES EXCEED \$2,700

In 1963, the average Canadian dentist paid commercial dental laboratory charges totalling \$2,794. This amount was 57 per cent higher than the 1953 average expenditure. Laboratory charges in 1963 comprised a smaller percentage of all

que dans les autres. Les dentistes des plus grandes villes voient moins de patients et reçoivent un revenu brut plus faible que les dentistes des villes moins importantes. Il se peut donc que les dentistes des villes dépassant 500,000 habitants aient des cabinets moins grands et moins d'employés que ceux des villes moyennes, ce qui se retrouve dans les chiffres des salaires et des loyers moyens pour ces villes.

Les salaires représentent la plus grosse part du total des frais dans toutes les villes dépassant 30,000 habitants et dans les villes comprises entre 15,000 et 25,000 habitants. Dans les villes de toutes les autres catégories, les frais de laboratoire dentaire commercial viennent en tête des dépenses.

LES FRAIS DE LABORATOIRE DÉPASSENT \$2,700

En 1963, le dentiste canadien moyen a payé un total de \$2,794 en frais de laboratoire dentaire commercial, soit 57 pour cent de plus que la moyenne des frais de laboratoire pour 1953. Cependant, les frais de laboratoire représentent un pourcentage plus faible du total des frais professionnels: 22 pour cent en 1963 contre 25 pour cent en 1953 et 1958. Dans quelques provinces, le pourcentage est beaucoup plus élevé, il atteint par exemple 29 pour cent dans le Québec et

TABEAU 1 Dépenses moyennes pour chaque dentiste ayant répondu, classées par chapitres de frais professionnels.

Qué.		Ont.		Man.		Sask.		Alta.		B.C.-C.-B.		
\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	
1,223	12.0	1,446	11.2	1,407	10.5	1,512	10.9	1,703	12.2	1,687	12.1	Loyer de cabinet
434	4.3	400	3.1	301	2.3	301	2.2	355	2.5	375	2.6	Services publics
200	2.0	155	1.2	488	3.6	190	1.4	203	1.5	205	1.5	Assurances professionnelles
2,882	28.5	2,805	21.8	3,268	24.6	3,087	22.3	2,511	18.1	2,802	20.1	Frais de laboratoire
1,613	16.0	2,047	15.8	2,304	17.2	2,384	17.3	2,628	18.8	2,467	17.7	Fournitures dentaires et médicaments
2,018	19.9	3,456	26.9	2,882	21.7	3,570	25.9	3,628	26.1	3,827	27.5	Salaires
86	0.9	65	0.5	68	0.5	55	0.4	71	0.5	56	0.4	Bénéfices marginaux
299	2.9	395	3.0	416	3.1	398	2.9	418	3.0	472	3.4	Frais de déplacements, cotisations de sociétés, revues, frais de licence
574	5.7	708	5.5	866	6.5	752	5.4	950	6.9	782	5.6	Dépréciation de l'équipement dentaire
781	7.8	1,405	11.0	1,326	10.0	1,552	11.3	1,443	10.4	1,261	9.1	Autres frais
10,110	100.0	12,882	100.0	13,326	100.0	13,801	100.0	13,910	100.0	13,934	100.0	Total

professional expenses, however — 22 per cent compared with 25 per cent in both 1953 and 1958. Percentages were considerably higher than this in some provinces. For example, in Quebec and New Brunswick they were 29 per cent. Manitoba dentists reported the highest average laboratory bill — \$3,268. The lowest provincial figure was \$2,026 from Nova Scotia.

DENTAL SUPPLIES AND DRUGS
EQUAL 17 PER CENT OF EXPENSES

Dental supplies and drugs did not include equipment or business office supplies. This expense category was the third largest item among professional expenses and accounted for \$2,093, 17 per cent of total expenses. The average cost of dental supplies and drugs has risen 41 per cent since 1958 and 71 per cent since 1953, but as a percentage of total expenditures there has been very little change. As a percentage of all expenses, the average amounts spent on supplies and drugs were lowest in Ontario and Quebec. The latter province also had the smallest average expenditure on this item, \$1,613.

The pattern of average costs of drugs and supplies showed no relation to city size, there being only \$55 difference in the averages for cities under 1,000 and over 500,000 population.

le Nouveau-Brunswick. La moyenne des frais de laboratoire la plus forte revient au Manitoba avec \$3,268, et la moyenne la plus faible à la Nouvelle-Ecosse avec \$2,026.

LES FOURNITURES DENTAIRES ET LES
MÉDICAMENTS ATTEIGNENT 17 POUR
CENT DES FRAIS

Les fournitures de bureau et l'équipement ne sont pas compris dans le chapitre des fournitures dentaires et médicaments. Cette catégorie vient au troisième rang des frais professionnels, avec \$2,093, soit 17 pour cent du total des frais. Le coût moyen des fournitures dentaires et des médicaments a augmenté de 41 pour cent depuis 1958 et de 71 pour cent depuis 1953, mais le pourcentage par rapport au total des frais est resté sensiblement le même. C'est dans l'Ontario et le Québec que les dépenses moyennes en fournitures et médicaments forment le plus bas pourcentage du total des frais. Le Québec détient aussi la moyenne la plus basse de cette catégorie de frais avec \$1,613.

Il n'y a pas de relation entre l'importance des villes, et le coût moyen des fournitures et médicaments, puisqu'on ne trouve sur les coûts moyens qu'une différence de \$55 entre les villes de moins de 1,000 habitants et les villes dépassant 500,000 habitants.

OFFICE RENTS 43 PER CENT HIGHER THAN IN 1958

In the 1963 survey questionnaire, dentists were asked to list among their expenses the annual rent paid for their offices. If they owned their offices, they were requested to estimate the rental value of the property.

As a percentage of total expenses, rents in the provinces varied between 8 and 12 per cent. In Canada as a whole, the average rent paid for a dental office was \$1,435. Rents were highest in the three western-most provinces. Averages for all the provinces varied from over \$1,700 in Alberta to under \$1,000 in Nova Scotia and Prince Edward Island.

Average rents tended to rise with the size of the city in which the dentist practised. They were lowest (\$760) in communities of less than 1,000 people and highest in cities with between 250,000 and 500,000 inhabitants. Rents took a lower proportion of total expenses in the smaller cities—9-10 per cent in cities under 10,000 but between 10 and 13 per cent in larger cities.

Since 1953, the average rent paid for a dental office in Saskatchewan has risen from \$664 to \$1,512, an increase of 128 per cent. Rents have doubled in three other provinces — Alberta, Ontario and Nova Scotia and have increased by one-half in all other provinces except Prince Edward Island. There are at least two reasons for these increases. One, of course, is that rental rates have risen. The other is that more dentists had two or more dental chairs and employed more auxiliary personnel and they, therefore, required larger offices. Rents as a proportion of total expenses were the same in 1963 as in 1953. In both years, they comprised 12 per cent of total expenses.

OTHER EXPENSES

Depreciation. — Depreciation charges on dental and office equipment varied from \$950 in Alberta to \$471 in Nova Scotia. They were even lower in Prince Edward Island. The average for the country as

LES LOYERS ONT AUGMENTÉ DE 43 POUR CENT DEPUIS 1958

Le questionnaire de l'enquête de 1963 demandait aux dentistes de faire figurer parmi leurs frais le loyer annuel de leur cabinet, ou la valeur estimée de ce loyer au cas où le cabinet leur appartiendrait.

Le loyer représente 8 à 12 pour cent du total des frais professionnels, suivant les provinces. Le loyer moyen d'un cabinet dentaire pour l'ensemble du Canada est \$1,435. Les plus hauts loyers sont ceux des trois provinces les plus à l'ouest. Les loyers moyens de toutes les provinces sont compris entre celui de l'Alberta, qui dépasse \$1,700 et ceux de la Nouvelle-Ecosse et de l'Île du Prince-Édouard qui n'atteignent pas \$1,000.

Le coût moyen du loyer tend à augmenter avec l'importance de la ville où le dentiste exerce. Il est plus bas (\$760) dans les localités de moins de 1,000 habitants et plus haut dans les villes de 250,000 à 500,000 habitants. Dans les villes de moins de 10,000 habitants, le loyer compte pour une part plus faible du total des frais, 9 à 10 pour cent contre 10 à 13 pour cent dans les grandes villes.

Depuis 1953, le loyer moyen d'un cabinet dentaire est passé de \$664 à \$1,512, soit une augmentation de 128 pour cent. Dans trois provinces, l'Alberta, l'Ontario et la Nouvelle-Ecosse, les loyers ont doublé, tandis qu'ils ont augmenté de moitié dans toutes les autres provinces, sauf l'Île du Prince-Édouard. Ces augmentations s'expliquent de deux façons: d'abord, les taux de location ont été relevés; ensuite, les dentistes ont tendance à utiliser deux fauteuils ou plus, et par conséquent ils ont besoin de locaux plus vastes. Les loyers représentaient en 1963 la même proportion du total des frais qu'en 1953, soit 12 pour cent.

AUTRES FRAIS

Dépréciation. — La dépréciation de l'équipement dentaire et de cabinet oscille entre \$950 en Alberta et \$471 en Nouvelle-Ecosse. Elle est encore plus basse dans l'Île du Prince-Édouard. La moyenne

a whole was \$708 — 6 per cent of all expenses. The figure reported in the 1958 survey was \$545 which was 7 per cent of expenses.

Travel, Journals and Fees. — Combined professional expenses of travel to professional meetings, society dues, journals, licence fees, and so forth came to \$389, 3 per cent of total expenses. The highest provincial figure was British Columbia's average, \$472. Prince Edward Island's \$283 was the lowest provincial average.

Utilities. — The annual average cost of utilities such as electricity, gas, telephone, water, and so forth was \$386, \$100 higher than the average in 1958. Five provinces showed increases of 80 per cent or more in the cost of utilities in the last ten years. Only Alberta reported no increase.

Among the provinces, the highest average cost of utilities was Quebec's \$434 which was 4 per cent of average total expenses in that province. Saskatchewan, Manitoba and Nova Scotia all reported the same comparatively low average cost of \$301.

Insurance. — In 1963, the average dentist paid \$185 for liability, equipment, fire and other insurance related to office practice. There was no increase in the average cost of insurance between 1953 and 1958, but the cost increased 45 per cent between 1958 and 1963. This may be because more insurance related to dental practice was available in 1963 than five years earlier.

The figure for Manitoba, \$488, is too high to be truly representative. All other provinces reported average expenditures for insurance of less than \$210. When a few extreme figures are removed from the Manitoba sample, the average is in line with those of the other provinces. Similarly, the average figure for cities of 25,000 to 30,000 people has been distorted by a very few extremely high figures.

Fringe Benefits. — This expense category was included in the 1963 survey for the first time. 'Fringe' benefits were defined

pour l'ensemble du pays est de \$708, soit 6 pour cent du total des frais. Le chiffre de l'enquête de 1958 était \$545, soit 7 pour cent du total des frais.

Déplacements, revues, cotisations. — Les frais professionnels pour les déplacements à des réunions, les cotisations des sociétés, les revues et les frais de licence, etc, s'élèvent à \$389, soit 3 pour cent du total des frais. La Colombie britannique vient en tête des provinces avec une moyenne de \$472 et l'Île du Prince-Édouard en dernière position avec une moyenne de \$283.

Services divers. — Le coût annuel moyen de services tels que l'électricité, le gaz, le téléphone, l'eau, etc, est de \$386, soit \$100 de plus que le coût moyen de 1958. Cinq provinces signalent une hausse de 80 pour cent ou plus du coût de ces services pendant les 10 dernières années. L'Alberta seule ne fait état d'aucune augmentation.

Parmi les provinces, le coût moyen des services est le plus haut dans le Québec avec \$434, soit 4 pour cent du total des frais dans cette province. En comparaison, le coût moyen de \$301 pour le Manitoba, la Saskatchewan et la Nouvelle-Écosse paraît assez bas.

Assurances. — En 1963, le dentiste moyen a payé \$185 en assurances sur la responsabilité, l'équipement, le feu, et autres assurances liées au fonctionnement d'un cabinet. Le coût moyen des assurances n'avait pas augmenté entre 1953 et 1958, mais il a accusé une hausse de 45 pour cent entre 1958 et 1963, probablement parce que les assurances sur la pratique dentaire étaient plus développées en 1963 que cinq ans plus tôt.

Le chiffre du Manitoba, \$488, est trop élevé pour être vraiment représentatif. Dans toutes les autres provinces, les dépenses moyennes en assurances restent inférieures à \$210. En enlevant les quelques chiffres qui sont les plus élevés, le calcul pour le Manitoba correspond à celui des autres provinces. De même la moyenne pour les villes de 25,000 à 30,000 habitants

as benefits that were paid for employees and not included in salaries. The average payment was \$65.

All Other Expenses. — This item included expenditures on laundry, business office supplies, postage, and office maintenance, etc. The average expenditure was \$1,267, but there was a wide variation among the provinces. Some provinces listed as much as 13 per cent of their total expenses under this category while in others it was less than 8 per cent.

This report is condensed from the *Survey of Dental Practice, 1963* published by the Bureau of Economic Research.

est faussée par quelques chiffres extrêmement élevés.

Bénéfices marginaux. — C'est dans l'enquête de 1963 que cette catégorie de dépenses apparaît pour la première fois. Les bénéfices marginaux se définissent comme des gratifications versées aux employés en sus de leur salaire. Ils atteignent en moyenne \$65.

Autres frais. — Cette rubrique rassemble les dépenses de blanchisserie, de fournitures de bureau, de poste, d'entretien des locaux, etc. La dépense moyenne est de \$1,267, mais il y a de gros écarts entre les provinces. Ces dépenses s'élèvent à 13 pour cent du total des frais dans certaines provinces et à moins de 8 pour cent dans d'autres.

Ce communiqué est un résumé de l'Enquête de 1963 sur la profession dentaire, publiée par le Bureau des recherches économiques.

Dentistry and Expo 67

L'Art dentaire et l'Expo 67

Visitors to the Montreal World's Fair may be able to get a first hand look at the achievements and challenges of Canadian dentistry if present plans for Expo 67 materialize. Proposed dental exhibits would be housed in the 'Man and His Health' theme pavilion at the World Exhibition. A unique theatre-in-the-round will form the core of this pavilion.

Assisting in Expo's health plans is a dental advisory committee appointed by CDA President P. S. Christie in November of last year. The members include Arto Demirjian, Marcel Archambault and L. E. Francis of Montreal, C. A. E. Mc-

Si les projets actuels pour l'Expo 67 se réalisent, les visiteurs qui se rendront à l'Exposition internationale de Montréal pourront admirer les réussites de la profession dentaire canadienne et se rendront compte des défis qu'elle a à relever. Les exhibits dentaires seraient logés dans le pavillon 'l'Homme et la Santé' qui sera construit autour d'un théâtre circulaire unique à l'Exposition universelle.

Un comité dentaire consultatif, nommé en novembre dernier par le docteur P. S. Christie, président de l'ADC, prête son concours aux projets de l'Expo sur le thème de la santé. Les membres en sont



Ground level view of two adjoining Expo theme buildings — 'Man and His Health' and 'Man in the Community' (the taller of the two) • Vue du sol, des deux bâtiments thématiques adjacents de l'Expo — 'L'Homme et la Santé' (à gauche) et 'L'Homme dans la Cité' (à droite).

Cabe of Ottawa and R. F. Harvey, Montreal, chairman.

Expo 67, the first World Exhibition of the 'first category' ever authorized in North America by the International Bureau of Exhibitions, will open in Montreal April 28, 1967. The setting is a group of islands, largely man-made, in the St. Lawrence River, a few minutes away from downtown Montreal. On these islands, the theme buildings, the pavilions of the nations and provinces, bridges, harbours, underground and elevated transportation systems are being built.

The theme of Expo 67 is 'Man and His World.' There will be three groups of theme buildings in which will appear an integrated presentation of man's achievements to date and what he may achieve in future. The 'Man and His Health' pavilion is one of these buildings. Elsewhere, other divisions of the main theme will depict how man 'explores' his world; 'produces' changes in his world; 'provides' nourishment; and 'creates' ideas, exploits or dreams as his 'community' expands beyond himself, his family or tribe.

les docteurs Arto Demirjian, Marcel Archambault et L. E. Francis de Montréal, C. A. E. McCabe d'Ottawa; le président est le docteur R. F. Harvey de Montréal.

L'Expo 67, première exposition universelle de 'première catégorie' que le Bureau international des expositions ait autorisée en Amérique du Nord, doit s'ouvrir à Montréal le 28 avril 1967. L'emplacement choisi est un groupe d'îles, pour la plupart construites de toutes pièces et sises au milieu du St-Laurent, à quelques minutes du centre de Montréal. On y construit actuellement les bâtiments à thème, les pavillons des nations, ceux des provinces, des ponts, des quais, un métro et des voies élevées.

Le thème de l'Expo 67 est 'Terre des Hommes'. Trois groupes de bâtiments présenteront à la fois l'ensemble des réalisations de l'homme jusqu'à nos jours, et ce que peuvent être ses réalisations futures. Le pavillon 'L'Homme et la Santé' est un de ces bâtiments. D'autres parties du thème principal expliqueront par ailleurs comment l'homme explore le monde,

The story of 'Man and His Health' will be presented in a series of five peripheral exhibit halls surrounding the hexagonal central core theatre. The wall of this theatre, facing the peripheral halls, will graphically illustrate favourable aspects of health. In contrast, unsolved health problems will be depicted by the peripheral exhibits located in these halls.

As the visitor enters the pavilion, he will be confronted with the motif that health is essential to the enjoyment of life. Fluoridation to help him maintain good teeth will likely be featured as one of the attributes of a good environment.

In one of the peripheral halls the graphic wall will present the members of the health team — physicians, dentists, nurses, technicians, research workers, sanitary engineers and inspectors, chemists and others — who constantly labour to improve the health of man. But as he turns to examine the peripheral exhibits about him the visitor will be queried, "Are you helping these few to do so much?"

Another sector will consider education and the production of adequate numbers of health workers.

Access to the central theatre will be via two elevated ramps that circle the area in which the six stages are set. A continuous performance will take place in the theatre. Each performance will consist of two minute or three minute demonstrations on each stage in sequence.

comment il transforme le monde, comment il produit sa nourriture, comment son génie conçoit ses projets et ses rêves à mesure que sa cité grandit, au-delà de lui-même, de sa famille, ou de sa tribu.

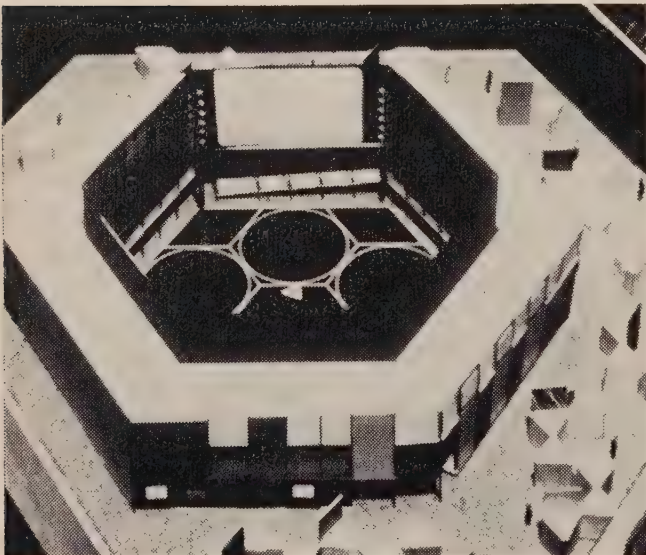
Le thème 'L'Homme et la Santé' sera développé dans cinq salles successives, disposées autour du théâtre hexagonal. Sur les murs de ce théâtre, face aux salles périphériques, des tableaux graphiques mettront en relief les avantages de la santé. En contraste, dans les salles périphériques, des exhibits illustreront les problèmes de la santé auxquels on n'a pas encore apporté de solution.

En entrant dans le pavillon, le visiteur prendra connaissance du thème, à savoir que la santé est indispensable pour bien profiter de la vie. La fluoration sera certainement présente parmi les facteurs d'une bonne condition de vie.

Le tableau graphique de l'une des salles représentera l'équipe qui œuvre constamment pour améliorer la santé de l'homme—médecins, dentistes, infirmières, techniciens, chercheurs, ingénieurs et inspecteurs sanitaires, pharmaciens et autres. Mais lorsque le visiteur s'apprêtera à examiner les exhibits périphériques, il se trouvera face à la question suivante: "Les aidez-vous à accomplir tant de choses?"

Une autre section sera consacrée aux problèmes de l'éducation et de la formation d'un nombre suffisant de personnes qui travaillent pour la santé.

Le visiteur accèdera au théâtre par deux rampes élevées faisant le tour du théâtre, lequel comprendra six plateaux. Une représentation se déroulera en permanence dans le théâtre. Elle consistera en démonstrations, de deux ou trois minutes que feront des acteurs profes-



Mock-up of the core theatre and peripheral exhibition hall in the 'Man and His Health' pavilion at Expo • Maquette du théâtre central et de la salle d'exposition périphérique dans le pavillon de l'Expo 'L'Homme et la Santé.'

The demonstrations will depict six aspects of international interest in health care. The demonstrators will be professional actors. A central interlocutor will explain each demonstration and guide the visitors' attention from stage to stage during the demonstrations.

Giant screens rising above the stage area will show closed circuit television, films or supporting illustrations related to the stage presentations.

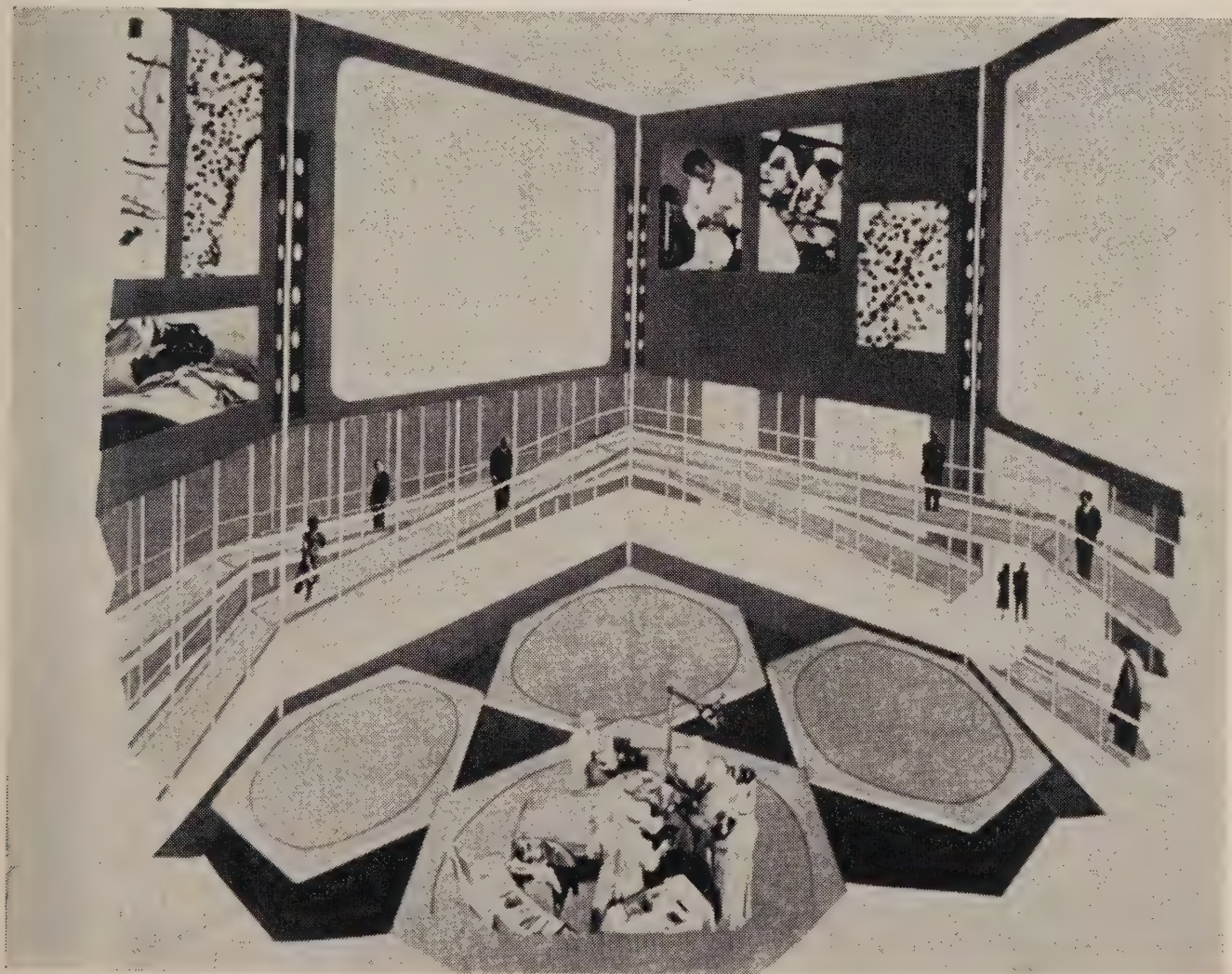
At three cycles per hour, the health theatre is expected to accommodate some 2,000 visitors per hour. Expo authorities anticipate that 10 million people will make 30 million visits to the Montreal exhibition before it closes on October 27.

sionnels sur chacune des scènes. Les démonstrations traiteront six questions d'intérêt international relatives aux soins médicaux. Un commentateur expliquera chaque démonstration et dirigera l'attention du visiteur d'une scène à l'autre.

Des écrans géants placés au-dessus des scènes illustreront les exposés en cours, grâce à un circuit fermé de télévision ou à des films.

Le théâtre de la santé pourra recevoir 2,000 visiteurs par heure, soit trois groupes par heure. Les autorités de l'Expo prévoient que 10 millions de visiteurs feront au total 30 millions de visites à l'Expo de Montréal avant sa fermeture le 27 octobre.

Mock-up of Expo's health theatre showing four of the six stages, parts of the viewing ramps which encircle the theatre, and the overhead screens, with operating room scene in foreground • Maquette du théâtre de la santé projeté pour le pavillon de l'Expo 'L'Homme et la Santé,' montrant quatre des six plateaux, une partie des rampes pour les spectateurs qui entourent les plateaux et les écrans surplombant, avec une scène de salle d'opération au premier plan.



L'Association

Le président Christie visite l'Ouest canadien

Le docteur P. S. Christie de Halifax, président de l'Association dentaire canadienne, a rendu visite aux sociétés dentaires de l'Ouest canadien à la fin de février et au début de mars. Le docteur W. G. McIntosh de Toronto, secrétaire de l'ADC, l'accompagnait.

Leur programme prévoyait des réunions le 19 février à Sudbury, le 21 février à Winnipeg, le 22 février à Regina, le 23 février à Saskatoon, le 24 février à Edmonton, le 25 février à Vegreville en Alberta, le 28 février à Victoria, le 1er mars à Vancouver, le 2 mars à Parksville en Colombie britannique, et le 3 mars à Calgary.

Canada

La santé et le discours du trône

Le discours du trône, dans lequel le gouvernement définissait ses intentions à l'ouverture du 27ème Parlement canadien, le 18 janvier, contient cinq articles relatifs à la santé, et par conséquent à l'art dentaire.

Le premier ministre a déclaré par la suite que les subventions pour les dépenses de fonctionnement des universités seraient portées de \$2 à \$5 per capita pour l'ensemble de la population. Le discours lui-même exprimait la volonté du gouvernement d'accorder des compensations fis-

cales aux provinces qui ont établi une assurance-santé répondant à certains critères. Cette déclaration reflète les vues du gouvernement, pour qui 'la politique officielle devrait viser à s'assurer que tous les Canadiens obtiennent les soins nécessaires à leur santé sans tenir compte de ce qu'ils peuvent payer.'

De plus, le gouvernement envisage de présenter une loi établissant un fonds des ressources de la santé de \$500 millions. Il projette la création de bourses d'études pour les étudiants de l'enseignement supérieur. Il prévoit enfin une loi qui établirait un conseil des sciences du Canada, afin de promouvoir la recherche scientifique.

Une école de techniciens dentaires dès 1966

Si les projets qui sont déjà en cours se réalisent, un institut de technologie dentaire ouvrira prochainement ses portes à Montréal. Sous l'égide du Ministère de l'Education de la province de Québec, et dans le cadre des recommandations du rapport Parent, cet institut offrirait un cours de trois années à temps complet à des jeunes gens qui auraient complété leur 11ème année scientifique.

Conformément aux normes du Ministère de l'Education, l'institut de technologie dentaire donnerait aux étudiants l'occasion d'acquérir non seulement des connaissances techniques et pratiques, mais aussi les connaissances académiques qui font normalement partie du programme de la 12ème, de la 13ème et de la 14ème année.

Parmi les membres du comité d'étude qui doit conseiller le Ministère de l'Education dans la réalisation de ce projet,

on remarque les doyens des deux Facultés de chirurgie dentaire de la province de Québec, des membres de l'Association des techniciens dentaires, et un représentant du Collège des chirurgiens dentistes.

Les dentistes des hôpitaux luttent pour être acceptés

L'article principal de l'édition de janvier de *Canadian Hospital*, publication mensuelle du Canadian Hospital Association, déclare que partout en Ontario les dentistes se battent continuellement pour gagner la reconnaissance et le statut officiels auxquels ils pensent avoir droit.

L'article fait suite à un séminaire de deux jours sur la dentisterie dans les hôpitaux, qui s'est tenu au General Hospital de Scarborough en Ontario, vers la fin de l'année dernière. (Ce séminaire a fait l'objet d'un communiqué paru dans le numéro de décembre 1965 du *Journal de l'Association dentaire canadienne*, pages 808-9).

S'adressant aux délégués du séminaire, F. A. Evis, conseiller médico-légal de la Commission des services hospitaliers de l'Ontario, a reconnu qu'il fallait même se battre pour que les dentistes soient mentionnés dans le Public Hospital Act ou dans les règlements hospitaliers de l'Ontario. Il a déploré le fait que 'dans un hôpital accrédité . . . le département dentaire doive répondre à toutes les qualifications requises pour l'accréditation, mais que ces standards ne sont pas reconnus légalement.'

Le texte intégral de la déclaration du docteur Evis sera publié dans le numéro d'avril du *Journal de l'Association dentaire canadienne* et dans le *Journal of the Ontario Dental Association*.

Un comité enquêtera sur les professions de la santé en Ontario

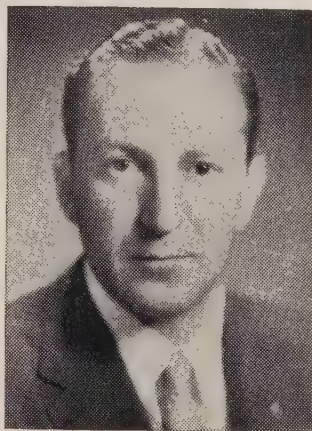
Le discours du trône prononcé le 25 janvier devant la législature ontarienne annonce que l'éducation, le droit de pratique et la discipline de tous ceux qui participent aux services de santé feront l'objet

d'une enquête. Le gouvernement de l'Ontario doit établir à cette fin un comité d'enquête spécial.

Chronique internationale

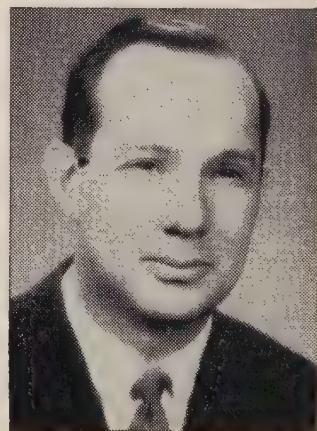
Le Dr Caplan devient président de l'International Alpha Omega

Lors de la réunion annuelle de l'Alpha Omega Dental Fraternity, à New York, le docteur Herbert Caplan de Montréal a été élu président international. Cette société groupe 17,000 dentistes, possède



Herbert Caplan

dans le monde entier des chapitres dans les principales Facultés de chirurgie dentaire, ainsi que des chapitres d'anciens élèves au Canada, aux États-Unis, en France, en Israël et en Grèce.



Frederick Vosburg

Un autre dentiste montréalais, Frederick Vosburg, a été nommé régent de l'Alpha Omega pour l'Ontario et le Québec.

Né à Montréal, le docteur Caplan est

Docteur en chirurgie dentaire de l'Université McGill. Il a servi dans les Forces Armées canadiennes pendant la deuxième guerre mondiale et s'est établi ensuite dans sa ville natale. Gouverneur du Collège des chirurgiens dentistes de la province de Québec, le Dr Caplan est aussi chef du département dentaire au Reddy Memorial Hospital de Montréal.

Les dentistes britanniques sont mécontents des Services Nationaux de Santé

Un dentiste sur 50 seulement est satisfait de son sort dans les Services nationaux de santé britanniques, d'après une enquête tenue par l'Association dentaire britannique au printemps 1965. Plus des deux-tiers des 12,000 dentistes qui exercent dans les SNS ont répandu à l'enquête. L'Association dentaire britannique en a publié les résultats dans un rapport intitulé: les dentistes et les Services nationaux de santé.

Leurs griefs portent surtout sur leur salaire, mais pas tant sur le montant du salaire que sur le rendement qu'ils doivent fournir pour le gagner. Une écrasante majorité veut voir modifier un système qui leur permet des gains élevés en début de carrière, alors que leur revenu diminue ensuite fortement dans la seconde moitié de leur vie professionnelle.

Les deux-tiers des dentistes qui ont répondu au questionnaire de l'ADB estiment que la situation est assez grave pour les pousser à quitter, de bon ou de mauvais gré, les Services nationaux de santé.

Les dentistes canadiens sont invités à un congrès péruvien

Les dentistes canadiens sont invités à participer à un congrès dentaire international organisé par l'Académie de stomatologie du Pérou, du 20 au 24 novembre. Des séances scientifiques portant sur la dentisterie clinique, l'endodontie, l'hygiène dentaire publique, l'éducation dentaire et la dentisterie pour les forces armées, auront lieu à Trujillo, au Pérou. On prévoit aussi une exposition dentaire. Pour renseignements supplémentaires

écrire à Antonio Pinillos, Sec. Gen. del Congreso, Casilla 2467, Lima, Pérou.

Organismes dentaires

Congrès de l'Association dentaire de la province de Québec

L'Association dentaire de la province de Québec tiendra son congrès annuel au Manoir Richelieu, à Murray Bay, les 8, 9 et 10 juin prochains, sous le signe de "Compétance et Fraternité". Le ministre de la Santé du Québec, M. Eric Kierans, a déjà accepté d'adresser la parole aux congressistes au cours d'un des dîners du congrès. Au moment où le Québec s'engage dans la réalisation d'un programme gouvernemental de soins médicaux auquel la profession dentaire sera peut-être appelée à collaborer, les propos de M. Kierans ne manqueront pas d'intéresser tous les congressistes.

Le docteur Sheldon Stein de Boston donnera deux longues conférences dans la journée de vendredi. Il traitera de couronnes et ponts, de réhabilitation, et des problèmes d'occlusions qui se rattachent à ces opérations. Ces deux conférences seront données en anglais, mais il y aura traduction simultanée.

Parmi les autres conférenciers, on remarque le docteur Benjamin Sedlezky (endodontie), le docteur Gaston Chesnay (chirurgie), de même que les docteurs Jean, Legault, Fiset, Perel, Marcel Hébert et Melvin Shevell. Le directeur du congrès est le docteur Fernand Beaudoin, 149 rue Bonaventure, Trois-Rivières.

Les représentants du Collège des chirurgiens dentistes de la province de Québec rencontrent le Ministre de la Santé

A la suite de l'approbation par le Bureau des gouverneurs d'une déclaration de principes en neuf points (voir sous la rubrique Economie), les représentants du Collège des chirurgiens dentistes de la province de Québec ont demandé à être reçus par le Ministre de la Santé.

La délégation comprenant le président du Collège, le docteur Henri Brouillet, ses deux vice-présidents, les docteurs Lorenzo Picard et Marcel Archambault, de même que le registraire le docteur Robert Leblanc, a été reçue par M. E. Kierans le 17 janvier dernier.

Le Ministre de la Santé s'est montré compréhensif et amical. Après qu'on lui eut exposé le point de vue de la profession dentaire, il a déclaré comprendre le désir de coopération des dentistes. M. Kierans a demandé que le Collège des chirurgiens dentistes de la province de Québec soumette un mémoire au comité conjoint du Conseil législatif et de l'Assemblée législative qui étudie le problème de l'assurance santé.

Facultés dentaires canadiennes

L'éducation dentaire doit réformer ses programmes et y ajouter l'internat

Il nous faut au Canada des cliniques dentaires dans les hôpitaux enseignants ou dans les hôpitaux dentaires, dans lesquelles les jeunes dentistes gradués pourraient effectuer un internat payé, et acquérir ainsi l'expérience dont ils ont besoin pour recevoir leur droit de pratique, qu'ils doivent actuellement acquérir dans les facultés dentaires. Telle est la recommandation d'un rapport sur l'éducation dentaire au Canada que la Commission royale sur les services de santé vient de rendre publique.

Trois études ont été faites pour la Commission Hall. L'auteur de celle-ci est K. J. Paynter, président du Conseil des recherches de l'ADC et professeur à la Faculté de chirurgie dentaire de Toronto.

Le docteur Paynter continue en disant que l'application de cette mesure donnerait aux facultés dentaires, dont les programmes sont surchargés, le temps qui leur fait défaut pour dispenser une instruction plus complète dans les sciences de base, l'enseignement clinique, et l'orientation vers la société dans laquelle le dentiste est appelé à exercer.

Le docteur Paynter fait remarquer que c'est dans ces cliniques dentaires hospita-

lières que l'on pourrait former tout le personnel auxiliaire sans encombrer l'université. On pourrait y établir des cours théoriques pour les assistantes et les techniciens dentaires sous l'égide de l'hôpital, aidant ainsi la profession dentaire tout en décongestionnant les facultés dentaires.

Ainsi les professeurs des facultés dentaires donneraient toujours aux auxiliaires les cours de formation générale, ceux de biologie, par exemple, mais les travaux cliniques auraient lieu en dehors de l'université. Les internes dentaires auraient de ce fait la possibilité, qu'ils n'ont pas actuellement, de travailler avec des auxiliaires, et d'apprendre à coordonner et à superviser leur travail.

En suggérant cette réforme, le docteur Paynter fait remarquer que l'internat ne devrait pas forcément retarder d'une année complète l'obtention du droit de pratique. Si les deux dernières années de faculté n'étaient pas séparées par de longues vacances, et si l'internat commençait immédiatement au terme de la quatrième année dentaire, la prolongation ne serait que de six mois environ, et les dentistes seraient alors beaucoup mieux préparés.

Le docteur Paynter recommande aussi que la formation des spécialistes cliniques se fasse principalement dans les hôpitaux.

La capacité des écoles a augmenté de 75 pour cent en 10 ans

Le Conseil d'enseignement de l'ADC a étudié les 27 et 28 janvier derniers un rapport du Bureau des recherches économiques de l'ADC qui révèle que la capacité des facultés dentaires canadiennes s'est accrue de plus de 75 pour cent au cours des 10 dernières années.

Cette expansion doit se continuer, comme le montrent les précisions des écoles suivantes:

L'Université Western Ontario recevra huit étudiants dans sa classe de première année en septembre prochain;

Les classes de l'Université de Montréal passeront de 78 à 85 étudiants;

L'Université de Colombie britannique portera ses classes de huit à 20 étudiants;

La Faculté dentaire de l'Université de la Saskatchewan recevra vers 1967 une première année de 30 à 35 étudiants;

Lorsque vers 1968 l'Université de l'Alberta aura achevé son programme d'agrandissement, elle pourra recevoir 15 étudiants dentaires et 18 étudiants en hygiène dentaire de plus;

Les projets d'agrandissement de la Faculté dentaire de l'Université Dalhousie ont été approuvés. Ils devraient permettre d'accepter vers 1969, 36 étudiants dentaires de plus dans les cours sous-gradués et de fournir l'espace nécessaire aux cours gradués, post-gradués, ainsi qu'à la recherche;

L'agrandissement de l'Université du Manitoba élèvera la capacité de ses classes sous-graduées de 33 à 50 places, et de ses classes d'hygiène dentaire de 16 à 25 places.

L'Université McGill espère aussi accroître la capacité de sa Faculté de chirurgie dentaire, bien qu'elle n'ait pas encore annoncé de date précise.

Les facultés dentaires canadiennes comptent actuellement 1,289 étudiants sous-gradués.

Le coût moyen du cours dentaire de quatre ans s'élève à \$7,548 (\$4,334 pour les frais d'université et \$3,214 pour la chambre et pension). Le coût moyen du cours d'hygiène dentaire de deux ans est de \$2,391 (\$1,036 pour frais d'université et \$1,355 pour la chambre et pension).

L'Université de Montréal honore le docteur Geoffrion

L'Université de Montréal a récemment conféré un doctorat honoris causa en droit au docteur Paul Geoffrion, ancien doyen de la Faculté de chirurgie dentaire. Dentiste et éducateur canadien dont le renom est international, le docteur Geoffrion reçoit cette nouvelle distinction en reconnaissance de ses nombreuses contributions scientifiques, particulièrement dans le domaine de l'orthodontie.

Membre honoraire de l'Association dentaire canadienne, le docteur Geoffrion fait aussi partie du conseil du nouveau Collège royal des chirurgiens dentistes du Canada. Il est l'auteur de deux manuels d'orthodontie; son manuel français a été

traduit en italien, alors que le manuel anglais a aussi paru en français et en espagnol.

Don du Collège du Québec aux Universités McGill et de Montréal

Le Collège des chirurgiens dentistes de la province de Québec a fait don de \$3,500 à l'Université McGill et à l'Université de Montréal, pour aider la recherche dentaire.

La Faculté de chirurgie dentaire de McGill consacrera la somme à l'acquisition d'un appareil de photomicrographie, et le département de recherche de la faculté de l'Université de Montréal s'équippa d'appareils pour la préparation des pièces en vue d'examen microscopique.

Une faculté dentaire à l'Université McMaster

L'Université McMaster de Hamilton, pourrait commencer prochainement la réalisation d'un projet de \$100 millions qui doterait les régions de Niagara et de Hamilton d'un centre des sciences de la santé des plus modernes au Canada.

Les journaux rapportent que le centre doit être construit en deux étapes, sur une période de 10 à 15 ans.

La première étape, qui coûterait environ \$40 millions, comprend la construction d'un hôpital enseignant, des installations d'instruction et de recherche pour une faculté de médecine, une école d'infirmières, une division de réhabilitation, et des installations de médecine psychologique et de travail social médical.

La seconde étape permettra, au prix de \$60 millions, d'agrandir la faculté de médecine et l'hôpital enseignant, d'établir des écoles d'art dentaire, de pharmacie, de diététique et d'hygiène publique.

Cours de perfectionnement à l'Université d'Alberta

La Faculté de chirurgie dentaire de l'Université d'Alberta offrira 12 cours de per-

fectionnement entre les mois de mai 1966 et mars 1967.

Ces cours porteront sur la radiologie, la pathologie, l'orthodontie, la périodontie, les chirurgies, les urgences, la prothèse, l'administration, l'endodontie, la dentisterie opératoire, les couronnes et ponts. Il y aura aussi un cours pour les hygiénistes dentaires.

Pour renseignements additionnels il suffit de consulter la chronique 'Avis' du Journal.

Economie

Le Collège des chirurgiens dentistes du Québec établit les conditions d'une assurance dentaire gouvernementale

Le Collège des chirurgiens dentistes de la province de Québec a formulé les principes généraux qui pourraient définir la forme que prendrait une assurance dentaire du gouvernement au Québec, au cas où celui-ci déciderait d'inclure les traitements dentaires dans ses programmes futurs d'assurance santé. Le bulletin du Collège, *L'Information*, publie dans son édition de janvier une déclaration en neuf points qui stipule ce qui suit:

Tout plan d'assurance santé doit être accompagné d'une campagne d'éducation énergique et constante en hygiène dentaire;

Le gouvernement devrait immédiatement mettre en application les mesures préventives telles que la fluoration;

Les patients doivent pouvoir choisir librement leur dentiste;

Les dentistes doivent avoir toute liberté de prescrire les traitements qu'ils jugent nécessaires;

Les dentistes doivent rester libres de participer ou non à tout plan dentaire gouvernemental.

La déclaration ajoute que le Collège continuera à protéger les intérêts du public en exerçant son contrôle professionnel sous tout régime d'assurance dentaire. Le Collège désire aussi faire un effort pour remédier au manque de dentistes s'il peut obtenir l'assurance d'une aide gouvernementale pour développer les institutions d'enseignement dentaire dans nos univer-

sités, et pour créer des instituts de technologie pour le personnel auxiliaire.

L'étendue de la protection offerte par une assurance dentaire dépendrait des fonds que le gouvernement voudrait bien y consacrer. L'assurance pourrait donc offrir, soit des soins complets, soit des soins limités, et cela, soit à l'ensemble de la population, ou à certains groupes, par exemple, aux enfants.

L'Association de l'Alberta soumet un plan dentaire au gouvernement provincial

L'Association dentaire de l'Alberta a proposé un plan d'assurance dentaire subventionné par le gouvernement, pour certains groupes d'enfants de moins de huit ans. Les recommandations, soumises aux autorités provinciales le 22 décembre 1965, prévoient un remboursement au moyen d'une co-assurance payable à l'avance. Le plan s'adresserait d'abord aux familles de revenu modeste et la part du gouvernement serait fixée par une échelle variable, allant de 20 à 80 pour cent selon le besoin.

Lorsque l'expérience pratique et les prévisions des actuaires le permettront, il sera possible d'étendre les bénéfices du plan à d'autres groupes, à mesure que des moyens de prévention seront mis en œuvre, et à mesure que les soins passeront du traitement actif au stade de l'entretien.

La gestion du plan serait confiée à la corporation des services dentaires de l'Association dentaire de l'Alberta, qui est habilitée comme agent légal par l'Alberta's Societies Act.

Les dentistes recevraient des patients leurs honoraires habituels, correspondant aux taux courants. Les assurés seraient ensuite remboursés d'après une échelle des bénéfices qui reste à déterminer. Les différences entre les honoraires du praticien et le remboursement reçu resteraient à la charge du patient (principe de la co-assurance).

Le nombre des assurés augmente

Plus de deux millions et demi d'Américains possèdent actuellement une as-

surance dentaire, et leur nombre passera probablement à 15 millions d'ici cinq ans. Ces chiffres ont été révélés lors de la réunion annuelle de l'Association dentaire américaine, à Las Vegas.

Il existe aux Etats-Unis quatre sortes de programmes dentaires pré-payés:

Celle de la corporation bénévole de service dentaire, mandatée par la société dentaire d'un état, pour offrir des plans de groupe payables à l'acte, ou suivant la forme choisie par les dentistes qui y participent;

Le plan d'assurance commercial dans lequel les compagnies privées garantissent les risques de l'assurance dentaire avec leurs propres fonds;

Les programmes limités dans lesquels un groupe de dentistes offre ses services à un groupe déterminé de patients;

Les plans d'assurance mutuelle dans lesquels un groupe réunit des fonds pour assurer ses propres membres.

Fluoration

La fluoration battue au vote

Plusieurs villes ont rejeté dernièrement la fluoration de leurs services d'eau. Dans l'Ontario, Cobourg, Lindsay, Peterborough, Port Colborne et Fort William ont rejeté la fluoration par de grosses majorités. Port Arthur ne l'a rejetée que par 277 voix, alors qu'elle l'avait battue par 2,200 voix en 1963.

Sherwood Park, en Alberta, a voté en faveur de la fluoration dans l'énorme proportion de 85 pour cent.

A Oak Bay, près de Victoria, en Colombie britannique, les voix en faveur de la fluoration ont atteint 59.646 pour cent, mais la loi provinciale exige 60 pour cent des voix pour adopter la fluoration. En 1959, Oak Bay ne comptait que 42 pour

cent de voix pour la fluoration. Toujours en Colombie britannique, la fluoration a été rejetée à Powell River, à Kinnaird, à Pouce Coupe, et à Dawson Creek.

A Kingston, en Ontario, la fluoration devait être accomplie à la fin de janvier. Le conseil municipal avait adopté en décembre un arrêté autorisant la fluoration.

D. L. McNair, un dentiste de Vancouver, encourage ses collègues à poser de affiches dans les salles d'attente, à distribuer des feuillets et à avertir les patients personnellement sur les bienfaits de la fluoration.

Hygiène publique

L'hygiène dentaire publique redevient une spécialité au Québec

Le Bureau des gouverneurs du Collège des chirurgiens dentistes de la province de Québec a pris, le 9 décembre 1965, la décision de reconnaître à nouveau comme spécialité l'hygiène dentaire publique.

L'hygiène dentaire publique avait déjà été reconnue comme une spécialité au Québec, mais sa reconnaissance avait été retirée le 21 février 1964.

Palmarès

L'Université de Montréal a récemment décerné un doctorat honoris causa en droit au docteur **Paul Geoffrion**, ancien doyen de la Faculté de chirurgie dentaire de l'Université.

Herbert Caplan de Montréal a été élu président international de l'Alpha Omega Dental Fraternity.

The Association

Executive Recognizes Two New CDA Sections; Grants \$9,500 to Launch Aptitude Tests

A full agenda greeted members of the Executive Council when they began their regular four day midyear meeting at CDA headquarters last February 14.

The Council fixed the dates for three future CDA annual meetings (Board of Governors meetings and national conventions will run from Monday through Saturday effective 1968), and dealt with the recognition of new specialties and aptitude testing for applicants to Canadian dental schools.

Council formulated a statement concerning the duties of CDA governors. This statement will be submitted to the Board of Governors meeting at Halifax in June.

Council also drew up new operating procedures for CDA annual meetings, adopted a new policy governing the acceptance of grants by the Association (including grants to convention committees), and authorized an allocation of \$9,500 to launch the aptitude testing program recommended by the Council on Education.

Future annual meeting dates (Board of Governors meeting and national convention) will be: Vancouver, May 27-June 1, 1968; Montreal, June 2-7, 1969; Winnipeg, June 1-6, 1970. J. G. Ryan, Vancouver, was named chairman of the 1968 Convention Committee.

In two further decisions affecting conventions, Council appointed P. G. Anderson, Toronto, as presidential installing officer at the 1966 Halifax convention and selected preventive dentistry as the subject of the 1966 special CDA convention

presentation. This two hour presentation is an established part of national convention programs.

In other actions:

Council accorded provisional CDA section status to the Canadian Academy of Restorative Dentistry and the Canadian Academy of Endodontics;

Requested that the Specialists and Specialization Committee review requirements for recognition of specialists;

Confirmed the appointment of President P. S. Christie as pro tem chairman of the Special Advisory Committee on Commercial Insurance (action necessitated by resignation of the committee's chairman, D. C. Way of London); and

Approved dispositions for a Canadian Dental Association-American Dental Association executive conference in Toronto May 12-13.

Following consideration of renewed activities by dental mechanics in Ontario and British Columbia, Council instructed Secretary McIntosh to collate information on all facets of illegal practice in Canada and abroad and make such information available to corporate members on request.

Council received a progress report on the current survey of public health dentistry being conducted by the University of British Columbia in co-operation with the CDA. Council also learned about current developments affecting dentistry at the Department of National Health and Welfare and received notification of an impending transfer of corporate member status from the Royal College of Dental Surgeons of Ontario to the Ontario Dental Association.

News from Parliament

Senate Committee on Aging Endorses Universal Medicare

Two recommendations affecting the provision of dental services were contained in the report of the Special Committee of the Senate on Aging tabled in Parliament February 2.

Recommendation 19 asks "that facilities

be provided more widely in the community to which sick elderly people could go or be brought for on-the-spot assessment, treatment counselling, rehabilitation and related services, such facilities to include outpatient departments of hospitals, geriatric clinics, and special clinics as required concerned with mental health, speech and vision defects, *dental care* and rehabilitation."

Recommendation 29 urges "that, on the lines proposed by the Royal Commission on Health Services, a nation-wide universal health service program be instituted to provide a comprehensive range of services including . . . *dental care* . . . and that, if staging is required . . . older people be given special consideration."

The Special Committee was appointed in 1963 "to examine the problems involved in the promotion of the welfare of the aged and aging" population. Senator David Croll is committee chairman.

In a brief which the CDA submitted to the committee in May 1964, the Association called for universal mandatory fluoridation and advocated that:

Dental care programs for non-ambulatory aged persons be developed locally by the profession in consultation with local health agencies; and

Dental departments be established in all hospitals and institutions to provide dental services to their patients.

The CDA brief also reiterated the view that services for older people must not jeopardize the care required by the youngest members of the population.

Canada and the Provinces

Montreal May Get a Technicians School

A new school for dental technicians may open in Montreal this year if current plans materialize.

The proposal calls for a training centre supervised by Quebec's Department of Education in accordance with recommendations of the Parent Royal Commission on Education.

The school would offer three years of full-time instruction to candidates who

have successfully completed grade 11 (science) requirements. Instruction in academic subjects normally required by Quebec's grade 12-14 curriculum would be included along with vocational training.

An advisory committee will assist the provincial education authorities with this project. Members of this committee will include the deans of Quebec's two dental schools, representatives of the Dental Technicians Association and a representative from the College of Dental Surgeons of the Province of Quebec.

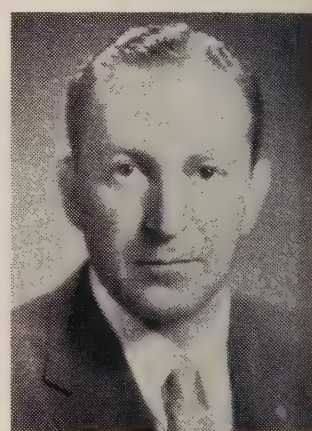
International Items

International Alpha Omega Elects Dr. Caplan of Montreal

Herbert Caplan, Montreal, was elected international president at the recent annual



Frederick Vosburg



Herbert Caplan

meeting of the Alpha Omega Dental Fraternity in New York City. This professional group has 17,000 members, with chapters at leading dental schools throughout the world, and alumni chapters in Canada, USA, Mexico, France, Israel and Greece.

Another Montreal dentist, Frederick Vosburg, was named Alpha Omega regent for Ontario and Quebec.

Born in Montreal, Dr. Caplan earned a DDS degree from McGill University. Following World War II service in the Canadian armed forces, he began private practice in his native city. A governor of

the College of Dental Surgeons of the Province of Quebec, Dr. Caplan is also chief of the Department of Dentistry at Montreal's Reddy Memorial Hospital.

Peruvian Congress Set for Nov. 20-24

Canadian dentists are invited to attend an international dental meeting organized by Peru's Academy of Stomatology November 20-24. Scientific sessions covering clinical dentistry, endodontics, public health of dentistry, dental education and dentistry for the armed forces will be held at Trujillo, Peru. A dental exhibition is also planned. For further information please write to Antonio Pinillos, Sec. Gen. del Congreso, Casilla 2467, Lima, Peru.

Dental Organizations

Eric Kierans to Address Quebec Assn. Convention in June

Quebec's Health Minister Eric Kierans will address the dentists of 'la belle province' at the forthcoming convention of the Quebec Dental Association. Mr. Kierans will speak at a dinner meeting, Convention Chairman Fernand Beaudoin has announced.

"Mr. Kierans' remarks will be particularly significant at this time when Quebec is about to embark on a government medical care insurance scheme in which the dental profession may be asked to participate," Dr. Beaudoin explained.

Dates for the meeting, to be held in the Manoir Richelieu at Murray Bay, have been set for June 8-10.

Sheldon Stein, Boston, will be the principal essayist. He will deliver two papers on Friday, June 10 dealing with crown and bridge prosthodontics, oral reconstruction and related problems of occlusion. Dr. Stein's presentations, given in English, will be communicated to French listeners by simultaneous translation.

Other leading essayists and clinical lecturers include Benjamin Sedlezky (endodontics) and Gaston Chesnay (oral surgery). Paul Jean, M. Legault, Jacques

Fiset, M. L. Perel, Marcel Hébert and Melvin Shevell will be the additional clinicians.

Chairman of the convention is Fernand Beaudoin, 149 rue Bonaventure, Trois-Rivières, P. Quebec.

CDSPQ Officers Meet Quebec Health Minister

On January 17 a delegation from the College of Dental Surgeons of the Province of Quebec met with Quebec's Health Minister Eric Kierans to acquaint the minister with the profession's viewpoint on health insurance.

CDSPQ officials had requested such a meeting following the adoption of the college's nine point declaration of principles on health insurance (see 'Economics' section in this issue). The dental delegation, led by CDSPQ President Henri Brouillet, included Vice-Presidents Lorenzo Picard and Marcel Archambault and Registrar-Secretary R. M. Le Blanc.

At the conclusion of the meeting Mr. Kierans praised the profession's desire to co-operate. He also asked the college to submit a brief to the Joint Committee on Health Insurance of the upper and lower chambers of the provincial legislature.

Royal College of Dentists Schedules First Convocation May 14

Several distinguished Canadian dentists will be invested as charter fellows of the Royal College of Dentists of Canada when the college holds its first convocation at 2.00 p.m. on May 14 in the University of Toronto's Convocation Hall, Secretary J. E. Speck, Toronto, has announced.

"We hope that Governor-General Georges Vanier will confer the first degrees," the college official added.

Dr. Speck pointed out that the ceremony falls on the Saturday immediately preceding the opening of the Ontario Dental Association's convention Sunday, May 15. "There will be space in the non-reserved section for dentists who are in Toronto for the ODA meeting and who may wish to attend the convocation ceremony," he explained.

The college came into existence on

March 18, 1965. Members of its first council, elected last September 16-17, are: G. V. Fisk, Toronto; Paul Geoffrion, Montreal; A. W. S. Wood, Toronto; R. L. Scott, Brantford, Ontario; J. W. Neilson, Winnipeg; C. H. Moses, Toronto; and W. D. Clark, Stoney Creek, Ontario. The president is F. A. Smith of Vancouver. C. H. M. Williams, Toronto, is vice-president and A. A. Antoni, Toronto, is registrar.

The college was created to promote high standards of specialization in the dental profession, set up qualifications for and provide for the recognition and designation of properly trained specialists, grant fellowships by examination and encourage the establishment of training programs in the dental specialties in Canadian dental schools. The first examinations for fellowship may be held in February or March 1967. Candidates for fellowship must be practitioners of the five specialties recognized by the Canadian Dental Association: oral surgery, orthodontics, periodontics, prosthodontics and paedodontics.

Placement Service for Ontario Hygienists

The Ontario Dental Association in cooperation with the Ontario Dental Hygienists Association has established a placement service for dental hygienists. Enquiries regarding this service should be addressed to Mrs. T. Johnson, 8 Hallfield Road, Islington, Ontario.

Mechanics and Public Relations Discussed at Manitoba Meeting

Dentists from across the province converged on Winnipeg when the Manitoba Dental Association held its annual meeting last January 21-22.

M. M. Devan, chairman of prosthodontics, Graduate Department, University of Pennsylvania, delivered clinical lectures on partial denture construction.

Business sessions, conducted both afternoons, focused attention on public relations and current problems with dental mechanics.

New Practitioners Attend Vancouver PR Seminars

Newly arrived practitioners in the Vancouver area are again attending a series of practice orientation seminars sponsored by the Public Relations Committee of the British Columbia Dental Association. At these seminars they discuss how to establish a practice, methods of building a practice, examinations, estimates, fee schedules and fee collection.

The public relations aspects of the topics and problems are stressed. The new graduates also meet established practitioners on whom they may call for advice and assistance. In charge of the seminars is D. W. Findlay of North Burnaby.

Canadian Dental Schools

Alberta Faculty Announces Continuing Education Courses

The Faculty of Dentistry, University of Alberta, will schedule 12 courses of continuing education between May 1966 and March 1967. The following dates and subjects have been announced:

April 21-22, 1966: oral radiology;

May 9-13, 1966: interceptive orthodontics for the general practitioner;

May 16-18, 1966: oral pathology (at Banff School of Fine Arts);

August 18-20, 1966: periodontics II (periodontics I is a required prerequisite);

August 19-20, 1966: continuing education for the dental hygienist;

August 24-27, 1966: periodontics I for the general practitioner;

September 6-7, 1966: eighth biannual fall refresher course — symposium on management of surgical bleeding;

September 24, 1966: dental emergencies;

October 17-21, 1966: complete denture prosthodontics;

October 22, 1966: organization and management of dental practices;

October 26-28, 1966: endodontics for the general practitioner;

November 10-12, 1966: the cast gold inlay; and

March 6-10, 1967: crown and bridge prosthodontics.

Further details will be published in the announcements pages of the Journal from time to time.

Manitoba U Students Visit Alberta Faculty

University of Alberta dental students welcomed 27 members of the University of Manitoba's undergraduate dental society in Edmonton during a three day dental student exchange visit February 25-27. The visiting Manitobans enjoyed a well balanced program of scientific presentations, sporting and social events. The success of this initial meeting is expected to stimulate further inter-university undergraduate exchange visits.

Manitoba to Begin Orthodontic Graduate Program

The University of Manitoba has established a new graduate program in orthodontics leading to a masters degree. The two year course includes clinical training in orthodontics, theoretical work in applied and basic sciences related to orthodontics, and practical research to meet the requirements of the graduate school thesis.

The first candidates will be accepted in September 1966. All enquiries should be addressed either to the Department of Orthodontics, Faculty of Dentistry, University of Manitoba, 780 Bannatyne Avenue, Winnipeg 3, Manitoba or to the School of Graduate Studies and Research, University of Manitoba, Fort Garry, Manitoba.

Toronto Faculty May Triple Graduate Facilities

Toronto's Faculty of Dentistry believes it will have to triple its graduate and post-graduate student enrolment to help supply the qualified teachers that will be required by Canada's new as well as expanding existing dental schools.

This was pointed out by Toronto's Dean R. G. Ellis and K. J. Paynter in a brief submitted February 24 to the 'Commis-

sion to Study Development of Graduate Programs in Ontario.'

The Toronto school will require an addition of 25,000 square feet to its existing dental building, the brief pointed out. Cost of the addition would exceed \$1 million. Annual operating expenses would also rise by \$770,000 to meet the cost of additional technical, secretarial and nursing staff as well as a further 17 full-time academic staff members.

McMaster U Plans Feature Dentistry

McMaster University, Hamilton, may soon embark on a \$100 million program to provide the Niagara and Hamilton areas with one of the most up-to-date health science centres in Canada.

Newspaper reports say that the centre is to be built in two stages over a period of 10 to 15 years.

The first stage — to cost about \$40 million — comprises a 400 bed teaching hospital, instruction and research facilities for a faculty of medicine, a school of nursing, a division of rehabilitation and facilities for psychological medicine and medical social work.

The second stage, costing \$60 million, will permit enlargement of the medical faculty and teaching hospital and the establishment of schools of dentistry, pharmacy, nutrition and public health.

Dr. Geoffrion Honoured by Université de Montréal

The Université de Montréal recently conferred an honorary doctor of laws degree on Paul Geoffrion, former dean of the university's Faculty of Dental Surgery. This award, in recognition of Dr. Geoffrion's many contributions to science and orthodontics, represents a further distinction for this internationally renowned Canadian dentist and educator.

An honorary member of the Canadian Dental Association, Dr. Geoffrion is also a member of the council of the recently established Royal College of Dentists of Canada. He is the author of two orthodontic texts, one in French which has been translated into Italian, the other in

English which has been translated into French and Spanish.

Royal Canadian Dental Corps

Captains Jacob and Moore Retire

Capt. J. A. L. Jacob, a quartermaster, and Capt. G. J. Moore, administrative officer, recently retired after 25 and 26 years respectively of continuous service with the Royal Canadian Dental Corps.

These two officers were commissioned from the ranks and have held various appointments in Canada. Both have been awarded the Canadian Forces Decoration.

Promotions for Three Corps Members

Canadian Forces headquarters, Ottawa, has announced promotions for the following personnel:

Lt. **E. L. Proudfoot** and **H. F. Doyle** to captain, administrative officers;

Warrant Officer First Class **T. M. Jackson** to lieutenant, administrative officer.

RCDC Display at Toronto Faculty Open House

Two RCDC exhibits illustrating the 'Dental Officer Subsidization Plan' and 'Casualty Care' attracted attention from visitors at the University of Toronto Faculty of Dentistry's 'Open House' on February 13. The two exhibits were supplemented by additional photographs depicting progress in the Corps' facilities during the past 50 years.

Capt. W. J. Sinclair, RCAF Station, Downsview, Ontario, attended the display and answered enquiries about the Corps and its subsidization plan.

Regional Conventions

CSDC Ont. Chapter Meets May 14

The following program for the annual meeting of the Ontario Chapter, Cana-

dian Society of Dentistry for Children, to be held at the Royal York Hotel, Toronto, Saturday, May 14, has been announced:

- 8:00 Registration, Coffee
- 9:00 Official opening: K. W. Davey, president
- 9:15 G. Nikiforuk, Los Angeles: Diagnostic implications of hypoplastic and discoloured teeth
- 10:45 D. Garliner, Buffalo: Mysfunctional therapist's role in paedodontics
- 12:00 Business meeting
- 12:30 Luncheon: Speaker—Sumter Arnim; Subject—Microbial world and phase microscopy
- 2:00 G. Nikiforuk: Topical and systemic fluorides in the prevention of dental caries
- 3:15 Sumter Arnim, Houston, Texas: Modern methods for control and treatment of dental caries in children

Economics

CMA Forms Collective Bargaining Committee

The Canadian Medical Association has recently established a special committee on collective bargaining to assist physicians whose affairs may require the CMA to bargain collectively on their behalf.

Several hundred salaried physicians are currently employed by the federal government. A relatively small proportion of these are members of the CMA and it is not feasible that they should identify the CMA as their bargaining agent. Instead, it is likely that the medical-dental group of the Professional Institute of the Public Service of Canada will be the instrument selected as their bargaining unit. The CMA and its special committee have offered support to the negotiators for this group, not only to demonstrate interest in their affairs but also to learn from their experience.

Quebec College Lists Conditions for Government Dental Insurance

The College of Dental Surgeons of the Province of Quebec has formulated guide lines which could determine the pattern of a dental care scheme if the Quebec government decides to include dental treatment in its future health insurance plans. The nine point declaration, published in the January issue of the CDSPQ's *Information* stipulates that:

Any health insurance plan must be supported by intensive and continuous dental health education;

Government should forthwith implement preventive measures, particularly fluoridation;

Patients must be free to select their own dentist;

Dentists must be allowed to prescribe the treatment they judge best; and

Dentists must be permitted to join or remain outside of any government dental health scheme.

To safeguard the public, the CDSPQ will exercise professional control under any dental health insurance plan, the statement declared. The College will also "resolve [the manpower] problem with the assurance of government aid to increase dental training facilities in our universities and to create technological institutes for auxiliary personnel."

The extent of treatment would be determined by whatever funds the government allots for this purpose. Consequently, a dental insurance plan could offer either comprehensive or limited dental care to either the entire population or only to selected groups, such as children.

Fluoridation

Three Canadians at Washington Fluoridation Conference

Three Canadians were among 500 nationally prominent Americans representing science, law and public affairs who attended a 'National Dental Health Assembly' in Washington February 6-8. This unique meeting was sponsored by the United States Public Health Service in co-operation with the American Dental Association to salute the 21st anniversary of community water fluoridation in the United States. Purpose of the two and a half days of discussion was to develop new impetus for achieving more widespread adoption of this important health measure. The assembly coincided with National Dental Health Week, an annual event sponsored by the American Dental Association.

Canadians who attended the meeting

included C. R. Castaldi, Faculty of Dentistry, University of Manitoba; L. H. Bowen, Health League of Canada, Toronto; and K. L. Croft, deputy secretary of the Canadian Dental Association.

Public Health

Dentist-Emergency Measures Lecture Reprints Available

Reprints of three recent lectures outlining the relationship of the dentist to emergency health planning may be procured from the Dental Health Division of the Department of National Health and Welfare, Brooke Claxton Building, Ottawa, Ontario.

Titles of these papers which were prepared by C. A. E. McCabe, dental consultant, Emergency Health, Department of National Health and Welfare, are:

Role of the Dentist in Emergency Health Services;

Rôle du dentiste lors d'un désastre d'envergure nationale;

Rôle du Service de santé d'urgence en temps de paix et de guerre.

Research

New Research Abstracts Journal Begins Publication

Oral Research Abstracts, a new comprehensive abstract journal of the world's dental literature, made its debut last month.

Published by the American Dental Association, the new journal covers basic and applied oral health research in clinical, biological, physical and social science, education and public health. Separate sections are devoted to dental specialties, basic sciences, dental materials, dental health communications and social and behavioural research related to dentistry.

The new publication abstracts articles in about 250 dental journals from all parts of the world, as well as numerous non-dental publications.

Deaths

- Chalmers, William Logan. Toronto. Royal College of Dental Surgeons of Ontario, 1908. 26-2-66.
- Laferriere, Albert. 65. Montréal. Université de Montréal, 1926. 4-2-66.
- McCaffery, Hugh Michael. 62. University of Toronto, 1928. 21-2-66.
- Nesbitt, Percy Lyness. Ottawa. Royal College of Dental Surgeons of Ontario, 1917. 6-10-65.
- Reddin, James Dickson. 59. Mount Stewart, Prince Edward Island. Dalhousie University, 1933. 9-2-66.
- Rooney, Joseph Waldemar. 77. Quebec City. McGill University, 1918. 9-4-65.
- Roy, Charles E. 45. Disraeli, P. Québec. Université de Montréal, 1947. 18-1-66.

Awards and Honours

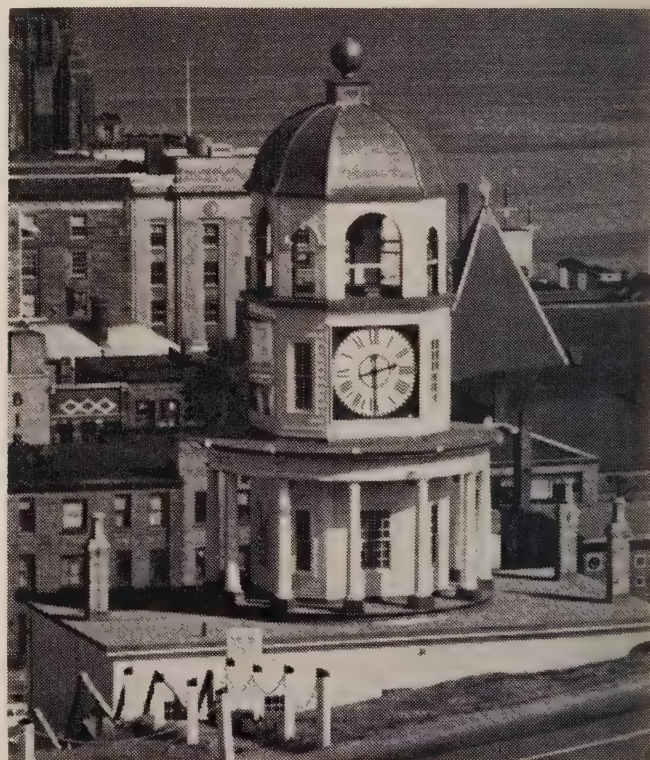
Herbert Caplan, Montreal, has been elected international president of the Alpha Omega Dental Fraternity.

The Royal College of Dental Surgeons of Ontario has conferred life memberships on eight Toronto dentists with a collective record of 400 years in dental practice. The ceremonial presentation was made February 15 during the Toronto Academy of Dentistry's annual 'President's Night.' The recipients were **G. D. Beierl**, **E. G. Berry**, **F. W. Canning**, **L. R. Davison**, **R. J. Godfrey**, **G. A. Lee**, **W. C. Leggett** and **E. F. Whaley**.

Three Manitoba dentists were named life members of the Manitoba Dental Association at the MDA annual board meeting January 9. The new life members are **W. A. Palmer** and **W. J. Robb**, both of Winnipeg, and **J. M. Williams** of Hamiota.

C. N. Morphy recently received a certificate of merit from the Melfort (Saskatchewan) Board of Trade in recognition of his services to the community over a long period of time.

Halifax, site of the National Convention in June, stands on a peninsula surrounded on three sides by tide-water and dominated by the Citadel overlooking the city and the harbour. Close to the Citadel is this Old Town Clock built in 1803 at the behest of Edward, Duke of Kent, father of Queen Victoria, who was Commander-in-Chief in Halifax at the turn of the nineteenth century.



in memoriam

Hugh Alexander Hoskin

Dr. H. A. Hoskin of Cold Springs (near Cobourg), Ontario, died on January 6, 1966, at the age of 84. He was born in Cold Springs in 1881 and graduated from the Royal College of Dental Surgeons of Ontario in 1904.

Dr. Hoskin practised in Tottenham, Ontario, from 1904 to 1909, and then in Toronto until 1916. That year he joined the Canadian Army Dental Corps and became officer-in-charge of a Canadian dental clinic in London, England. He was subsequently officer-in-charge of the Christie Street Military Hospital Dental Clinic in Toronto.

After the war Dr. Hoskin became the first full-time member of the clinical staff of the University of Toronto's Faculty of Dentistry where he served for 31 years. He retired from this position in 1951 with the rank of associate professor.

Dr. Hoskin was a member of the Senate of the University of Toronto for 12 years. He was also staff resident of South House, University of Toronto, for 14 years. He always took a keen interest in student affairs, representing the Faculty for six years on the students' Dentantics committee and serving for 20 years on the Social Committee.

Dr. Hoskin was an honorary member of the Royal College of Dental Surgeons of Ontario and an associate member of the Canadian Dental Association. He was

also a member of the Omicron Kappa Upsilon honorary dental society.

Surviving Dr. Hoskin are a brother, Wilfred; two sisters, Mrs. A. Bell and Edith Hoskin; and a nephew, Cameron Bell of Fort William, Ontario.

James Dickson Reddin

Dr. J. D. Reddin of Mount Stewart, Prince Edward Island, died on February 9, 1966, at the age of 59.

Born in Truro, Nova Scotia, in 1906, Dr. Reddin received his education at Prince of Wales College, St. Dunstan's University and St. Francis Xavier University. He taught school for two years prior to graduating from Dalhousie University in 1933. Dr. Reddin practised in Mount Stewart, St. Peters and Souris, Prince Edward Island, until 1939 and in Moncton, New Brunswick, from 1939 until 1945 when he returned to Mount Stewart where he practised until his death. He was the Prince Edward Island representative to the Board of Governors of the Canadian Dental Association from 1959 to 1960.

Besides his wife, Agnes, Dr. Reddin is survived by two sons, James and David; three daughters, Ellen, Eunice and Louisa; two brothers, Frederick and William; and one sister, Mrs. Simon Paoli of Kingsville, Ontario.

Volume of Dental Visits, United States, July 1963 - June 1964

US Department of Health, Education and Welfare. National Center for Health Statistics. Vital and Health Statistics. PHS publication No. 1000, Series 10, No. 23.

This report based on interviews conducted by means of a national sample of households indicates that persons in the civilian, non-institutional population of the United States made an estimated 293.8 million dental visits during the year ending June 1964. This averages 1.6 visits per person (1.7 for females and 1.4 for males). Any visit to a dentist's office for treatment or advice was counted, even if a technician or hygienist provided the service. About 42 per cent of the population were estimated to have made at least one dental visit in the year preceding the interview.

Persons living in metropolitan areas averaged 1.8 visits during the year. Farm residents averaged 0.9 visits, and nonfarm residents residing outside metropolitan areas 1.2 visits. Of the country's four regions, the Northeast showed the most visits (2.1), the South the least (1.1). For the country as a whole the nonwhite population registered 0.9 visits, the white population 1.7 visits.

Dental visits varied directly with family income. For example, persons living in families with incomes of less than \$2,000 made 0.8 visits each per year, as compared with 2.8 for those in the family income group \$10,000 and over. The estimated number of visits per person also increased with education of the head of the family, from 0.6 visits where the head had under five years of education to 2.6 where the head had at least 13 years.

The rate of visits among persons aged 17 years and over who had never been married (2.1 per person per year) was higher than the rates for married persons (1.7) and for those widowed, divorced, or separated (1.2).

Fillings and examinations represented about two-fifths and one-fifth of the visits respectively. (More than one type of service could be performed in a single visit.) The per cent of visits involving fillings peaked at 15-24 years and then declined. Extractions and other surgery also increased until that age, but then levelled off. Orthodontic services were performed almost entirely on per-

sons aged 5-24 years. Visits involving prosthodontic services increased with advancing years, until at 65 years and over prosthodontic service was performed in 42 per cent of the visits.

Certain comparisons are made with data covering the two years ending in June 1959, but in general the differences are small when account is taken of changes in the pattern of investigation.

F. E. Linder

Endodontics

J. I. Ingle. Philadelphia, Lea and Febiger, 1965. (Available from The Macmillan Co. of Canada Ltd., Toronto) 656 p. Illus. \$24.75

Even a cursory examination convinces the reader that this is no ordinary textbook. On closer study one realizes that encyclopaedia would be a more fitting term. Twenty-two contributors have pooled their experience and skills to produce a very detailed text, beautifully illustrated by more than 1,000 figures and plates contained within 656 pages.

Within the chapter on modern endodontic therapy, the section on contended contradictions brings to view many widely held conceptions concerning endodontic problems. By careful analysis the author shows that many of these opinions are not necessarily true. The division on endodontic cavity preparation encompasses the procedures which should be followed for each individual tooth. The illustrations which accompany the text are excellent. Descriptions of instrumentation, medication and obliteration of the root canals occupy a large section of the book. Again, each tooth is discussed separately and in great detail. Diagnosis of pulpal disease is also well developed both from the pathological and clinical aspect.

To make any attempt at a complete review of the book would require many pages. Suffice it to say that a fine addition has been made to the library of endodontics, and that students, general practitioners and teachers of endodontics will be well repaid by having this volume close at hand.

G. C. Hare

The Impacted Wisdom Tooth

H. C. Killey and L. W. Kay. *Edinburgh and London, E. & S. Livingstone Ltd., 1965. (Available from The Macmillan Co. of Canada Limited, Toronto) 107 p. Illus. \$3.00*

Killey and Kay have produced a very excellent book on *The Impacted Wisdom Tooth*. There are 10 well written and well illustrated chapters which make the reading of this text a pleasant task. From the opening chapter on surgical anatomy to the final chapter on complications, the authors have systematically reviewed the subject to encompass all of its facets.

One contentious item is that their surgical technique involves the excision of the lingual plate of bone to facilitate the removal of the impacted mandibular third molar. This 'split bone technique' has apparently been successful in the authors' hands but one must seriously consider the probable untoward effects which might result when employed by an inexperienced dentist.

The authors' rationale for the employment of routine antibiotic coverage is open to question. With adequate clinical evaluation and selective administration of antibiotics, one should be able to avoid all but the very exceptional post-operative infection.

Throughout the text there are many helpful suggestions regarding mucoperiosteal flap design, bone removal, and tooth sectioning. Postoperative care and complications are well covered.

This must be regarded as a most worthwhile text and one that will be of much value to those interested in the management of impacted teeth.

A. E. Hoffman

Fractures of the Middle Third of the Facial Skeleton

H. C. Killey. *Bristol, John Wright & Sons Limited, 1965. (Available from The Macmillan Co. of Canada Ltd., Toronto) 64 p. Illus. \$1.90*

This handbook is not meant to be encyclopaedic nor a text for the dental student, but it is of value both to the general practitioner as well as to the oral surgeon.

The author makes a more exacting classification of facial fractures than that established by René LeFort in 1901. He states that definitive reduction and fixation is never a life-saving measure and suggests that this aspect be deferred until the patient's general medical condition warrants proceeding. Special mention is made of establishment of an adequate airway, clearance of nasal blockage, treatment of shock,

presence of cerebrospinal fluid, cheek and lip lacerations, annoying fractured teeth and other complicating factors which must be dealt with before proceeding with diagnostic radiographs and more thorough intra-oral examination.

Definitive treatment is well outlined with supporting illustrations and diagrams of the various methods. Each problem involved is outlined and discussed with step-by-step description of the surgical procedure and method of fixation chosen by the author. The book therefore is timely, particularly in view of the increasing number and complexity of maxillofacial injuries which the motor age seems to foster.

It is hardly possible, in a brief review, to do justice to the years of experience which have gone into this handbook with the clarity of illustrations which render it concise, readable and easily assimilated.

F. A. Smith

Precept and Practice in the University: Education or Vocational Training

G. N. Davies. *St. Lucia, Queensland, University of Queensland Press, 1965. 18 p. 6s.*

Professor G. N. Davies presented this address as an inaugural lecture at the University of Queensland on October 6, 1964. He treats of a topic which is very much in the minds of many both within and without the university. He does so with good humour and considerable thoughtfulness.

He states that universities are training an ever larger number of professional people; and, in order to do so, the universities must seek ever larger amounts of public money to support these programs. It follows that the universities must convince that public that they are working in the interests of society and not for themselves alone. The resulting increased financial support makes it possible to put precepts into practice.

He points out that the extent to which a faculty of dentistry can bring precept and practice together is dependent upon the degree to which its aims and functions are understood by the university, the community and government.

He bases his brief upon a discussion of the size of the dental school in relation to the requirements of the state for dental graduates, the role of the university in the community, and the role of the dental school in the university and its responsibilities to the community.

Although Dr. Davies' address is primarily pointed to the situation as it exists in the University of Queensland, the principles which he discusses have relevance universally.

James McCutcheon

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Quarterly report

28-2-66

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	<i>Montant investi</i>	<i>Valeur au marché</i>	<i>Valeur unitaire</i>	
Government Bond Fund	\$ 536,461.89	\$ 518,101.72	\$13.454	Fonds d'obligations gouvernementales
Corporate Bond Fund	889,647.52	865,300.98	14.501	Fonds d'obligations corporatives
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Where the money goes

A previous editorial cited the predicament of the dental editor who strives to produce an economically viable publication for his association and one that also satisfies the readers' diverse tastes. The *Journal of the Canadian Dental Association* is a perquisite of association membership and, since it is partially underwritten by the Association, the pursuit of this discussion requires a closer examination of CDA affairs.

From what sources does the Association obtain its operating funds? How does it spend its money? What does it do for its members? And, perhaps even more important, what should it be doing in the future? These are the questions that require answers if the 6,215 CDA members are to help chart a realistic and progressive course for their official organ.

In 1964 — a typical year — the Association's revenue amounted to \$307,095. Two-thirds of this money (\$219,098) was contributed by the corporate members. Journal advertising and subscriptions earned \$67,746. The sale of educational pamphlets and other Association materials yielded \$12,273. The national convention produced \$6,237. Associate memberships brought in \$1,109 and a further \$632 accrued from the Canadian Dental Research Foundation.

But expenditures for that year, totalling \$324,487, exceeded revenue by \$17,392. Employees' salaries, pensions and health insurance benefits as well as the expenses of the close to 100 dentists who labour on various councils and committees gobbled up the lion's share (\$139,060) of the moneys that were expended. Journal production and commissions took another big bite — this one to the tune of \$64,091. Other publishing costs for educational materials and briefs to official agencies claimed \$26,690 from the treasury. Household expenses — the charges assessed for office supplies; postal and telecommunications; legal and auditing fees; heat, light and water; taxes; repairs, maintenance, depreciation and insurance — piled another \$38,854 on the debit side of the ledger. Annual meeting expenses accounted for \$16,238. An amount of \$12,827 was spent for studentships and fellowships — money that assists in training future dental teachers and helps to provide summer employment and stimulation for research-minded undergraduates. Other contributions in support of international dentistry (Fédération Dentaire Internationale) and dental education (Canadian Fund for Dental Education and Royal College of Dentists of Canada) absorbed \$7,227. The CDA library received its annual grant of \$1,500. And finally, \$15,000 were transferred to the Association's reserve fund.

Cash and securities in the reserve fund totalled \$210,974 at the end of 1964. Some members have questioned the need for a reserve of this magnitude while others have criticized the transfer of funds from current to reserve accounts when current revenue and expenditure produce a deficit at year end. But the CDA must also contend with accepted standards of financial integrity which

require that a non-profit organization maintain a reserve equivalent to twice its annual operating budget. The reserve fund, though it has slowly increased over the years, is still pitifully inadequate according to this yardstick.

Putting aside this discussion of money for the moment, what does the CDA actually do for its members? What would be the lot of Canada's dentists if they lacked a national organization?

To begin with, most dentists would find it infinitely harder to earn a livelihood! Thanks to the CDA and the National Dental Examining Board which it sponsored, Canadian dentists can make fairly simple arrangements to practise almost anywhere in North America. This has become possible because, through the CDA, a mechanism is provided for the recognition of educational qualifications. Without this facility, many young graduates would find their eligibility for licensure circumscribed because our dental schools would cease to be accredited institutions. Moreover, dentists who wish to relocate in other provinces would face the uninviting prospect of having to repeat their undergraduate studies.

Some readers will recall that Ottawa used to levy a duty of 25-35 per cent on nearly all imported dental equipment and supplies. In 1955, after years of patient negotiation, the CDA successfully persuaded the federal government to remove this impost from all but a very few items.

Without research, as the Honourable Hugh John Flemming once remarked, we would probably still be cave dwellers. And without the stimulus that CDA studentships and scholarships have provided, our dental schools might never have obtained some of their most valued teachers and the profession would have been deprived of an indispensable ferment for advancing and transmitting knowledge.

Without CDA sponsored pension and insurance plans, two out of every five dentists would be stripped of the low cost protection for personal and professional security they now enjoy. The profession's retirement savings plan, with its attractive tax relief features, would also disappear. Members would thereby lose an ideal instrument for pooling their savings for investment purposes and later use as retirement income.

Without a national association, Canadian dentists might never have gained the privilege of attending two tax deductible conventions per year anywhere in the world — a concession that was won through years of persuasion by the CDA and other professional groups. The same may be said of tuition fees for postgraduate courses which are also a tax deductible item.

Without the CDA, a profession bereft of a national voice would have no one to speak for it in its dealings with ministers of the Crown. Governments, for their part, would find it impossible to conduct any meaningful relationship with a profession dominated by competing tribal interests but lacking the organic family unity of a national association.

Only a few of the advantages conferred by national organization have been touched in this discussion. This is not to say that the CDA has now fulfilled all that may be expected of it and that it can simply rest on its laurels. On the contrary, there is every indication that the profession is about to enter what may well prove to be the most critical phase in its history. There will be new challenges to face, new strategies to work out, new decisions to be taken. For this we need a strong national organization and we need such an organization perhaps as never before. But if we fail to nourish the Canadian Dental Asso-

ciation, if we simply pursue our own parochial self-interest, we will be heading not merely for great disappointments, but toward possible disaster and tragedy as well. This is the choice that confronts us on the eve of Canada's centennial. The destiny of the Journal is a part of that choice.

The Canadian Dental Association: instrument of the nation's dentists

There have been several recent expressions of interest and concern over the *modus operandi* and structure of the Canadian Dental Association. Interest in the national organization is always welcomed and concern is never ignored. Anxiety in this particular instance was associated with the conditions whereby the Association receives its revenue and the manner in which its Board of Governors is constituted. It may therefore be helpful to examine the facts lest any dentist concludes that the Association arbitrarily pre-empts a portion of his licensing fee, giving him only a restricted voice or no participation at all in the conduct of its affairs.

The Canadian Dental Association is composed of 10 corporate members. Nine of these are the provincial statutory corporations from British Columbia to Nova Scotia, with the Newfoundland Dental Society as the tenth corporate member. In addition, licensed dentists within the jurisdiction of the respective corporate members are individual members of the Association unless they indicate any objection by withdrawing from such membership.

The revenue of the Association is derived from annual grants from the corporate members. The amount of these grants is determined by the corporate members.

The Board of Governors is composed of representatives of the various corporate members. Each corporate member is entitled to at least one representative, as well as a further representative for every additional 500 of its members or major portion thereof. At present four provinces elect their representatives, whereas these are appointed in the six other provinces.

In essence this makes the Canadian Dental Association a creature of the corporate members who in turn are composed of individual licensed dentists. The corporate members support the Association financially in the same way that sovereign member states support the United Nations Organization. Each corporate member determines the amount of its grant to the Canadian Dental Association. In arriving at this figure, cognizance is obviously taken of the Association's total program and budget requirements, as well as the fiscal practice of the other corporate members. The important considerations are: (1) that the grant is a lump sum determined by the corporate member, and (2) that the amount of the grant is flexible and can be altered by the corporate member. In fact a corporate member may cease paying its grant altogether and withdraw from the Association provided notice is given one year in advance of this intention.

The benefits of individual membership are entirely gratuitous. If a dentist chooses to withdraw from membership, he merely ceases to receive the corresponding benefits. But this action does not in any way alter his licensing fee. Individual membership status and fiscal support for the Canadian Dental Association are thus revealed as separate and distinct entities.

The activities of the Canadian Dental Association quite clearly require the consent and support of a majority of its individual members. For if the senior officers of the Association should deliberately embark upon a course which is contrary to the expressed will and good judgement of a majority of the members, this would undoubtedly prove to be their last action in this capacity. One might readily visualize the swift reaction from aroused individual members which would compel the elected governing bodies of their corporate members to take appropriate action, even to the extent of withdrawal of fiscal and membership support from the Association.

Furthermore, every member of the Canadian Dental Association is entitled to present his personal viewpoint to the Board of Governors. And it is precisely in order to maintain this direct contact that individual dentists are repeatedly urged to attend annual meetings of the Board where they may bring persuasion to bear upon the formulation of the Association's politics. More is the pity that so few dentists take advantage of this opportunity.

This is not to say that the existing relationship between practitioners, corporate members and the Association is necessarily the only way or the best way to form a strong national organization. At the instigation of a former Association president, the Board of Governors in 1960 suggested that a review be made by the corporate members of the practices pertaining to the selection of Board members, and as a result the method of selection was changed from appointment to open franchise in one province. But this is about as far as the Canadian Dental Association can go because it cannot and does not dictate to the corporate members how they should act in this or any other respect. It is up to each corporate member to determine the method of selecting its Board members and action in this regard is entirely beyond the jurisdiction of the Canadian Dental Association. This clearly leaves the ultimate responsibility with the individual dentist.

Individual members who are dissatisfied with existing arrangements should voice their concern to the governing body of the corporate member within whose jurisdiction they practise. The corporate member is bound to respond if a sufficient number of dentists act in concert. And if a majority of corporate members seek a change, there will be alteration in the national organization.

However, in view of the corporate structure of the Canadian Dental Association, two elements must be kept in mind in any consideration of the relative merits of representation by open franchise versus appointment. In the first instance, an open election could produce a representative to the Board of Governors who is neither a member of his corporate member's governing body nor familiar with that organization's policies and programs. In the second instance, such a representative might have to make decisions involving the expenditure of moneys which are not under his control but under the control of the governing body of the corporate member. It is not suggested that these problems are insoluble. None of these difficulties is insurmountable. However, the statutory nature of the corporate members may impose certain impediments. These facts are therefore presented in order to indicate some of the problems which must be faced.

In any event the way is open to Canada's dentists to effect changes by constitutional means if, in their opinion, the national organization does not adequately reflect their aspirations. It is worth emphasizing that every dentist can bring as much influence to bear as he wishes to exercise in this regard.

La Ligue d'hygiène dentaire du Québec

Les lecteurs trouveront ailleurs dans ce numéro le texte du dernier rapport annuel de la Ligue d'hygiène dentaire de la province de Québec. C'est un rapport fort intéressant que le *Journal de l'Association dentaire canadienne* publie de façon traditionnelle depuis plusieurs années. Le rapport de cette année est cependant d'un intérêt tout à fait particulier puisque le Ministère de la Santé du Québec vient d'assumer une proportion si importante des responsabilités qui étaient anciennement celles de la Ligue, qu'il nous paraît à peine exagéré de dire que l'on a étatisé la Ligue d'hygiène dentaire de la province de Québec.

Pour mieux comprendre la situation, il est utile de revenir en arrière et de se rappeler l'évolution de l'hygiène dentaire publique dans notre province. C'est en 1942 que l'on retrouve le premier organisme. Il s'agissait à ce moment-là de la 'Commission d'hygiène dentaire' qui n'était rien d'autre qu'une commission du Collège des chirurgiens dentistes de la province de Québec, commission semblable à la Commission d'éducation ou à la Commission des examinateurs, qui existent encore aujourd'hui. Cette commission dépendait directement du Bureau des gouverneurs qui nommait ses membres et assumait ses dépenses.

En mars 1945, la Commission d'hygiène dentaire devint la Ligue d'hygiène dentaire de la province de Québec incorporée. Elle demeurait en quelque sorte une filiale du Collège des chirurgiens dentistes, mais elle recevait une plus grande autonomie et une plus grande liberté d'action qui devaient lui permettre de se développer et de progresser plus facilement.

Vers 1955, la Ligue d'hygiène dentaire réussit à engager huit dentistes qui devaient consacrer tout leur temps à la promotion de l'hygiène dentaire. Le budget considérable dont la Ligue avait besoin pour mener à bien son entreprise lui provenait du Collège des chirurgiens dentistes de la province de Québec et du ministère fédéral de la Santé. L'octroi fédéral qui devait nécessairement faire un court stage à Québec avant d'être versé à la Ligue, représentait environs 96 pour cent du budget total. L'octroi du Collège des chirurgiens dentistes n'était que de 4 pour cent.

Lorsque le présent gouvernement provincial songea à mettre fin aux plans conjoints et à récupérer son argent et son autonomie, il lui sembla anormal de financer dans une si grande proportion une corporation qui était administrée privément. Suivant une saine politique, le gouvernement a décidé que puisqu'il devait de toute façon solder la note, il était peut-être préférable qu'il prit charge de la partie coûteuse de l'opération. La majeure partie de l'octroi gouvernemental a donc été retirée à la Ligue d'hygiène dentaire de la province de Québec, qui s'est trouvée dans l'impossibilité de garder à son emploi ses dentistes hygiénistes. Quatre d'entre eux sont entrés au Ministère de la Santé du Québec où ils continuent à promouvoir l'hygiène dentaire publique. Les autres ont préféré aller travailler ailleurs. La Ligue d'hygiène dentaire se retrouve avec un budget comparable à celui qu'elle avait avant 1955 et poursuit les activités qu'elle peut mener à bien sans l'aide d'un personnel à plein temps.

Même s'il nous faut admettre la logique administrative du geste qu'a posé le gouvernement, ce n'est pas sans une certaine appréhension que nous voyons

l'hygiène dentaire publique passer des mains d'une entreprise privée qui a fait ses preuves à celles du gouvernement. Les problèmes que nous avons à cœur ne risquent-ils pas d'être négligés, dans un ministère qui a tant d'autres chats à fouetter? Consolons-nous en pensant que le trésor provincial contribuera peut-être plus volontiers à la cause de l'hygiène dentaire publique, maintenant que les fonds sont administrés par le Ministère de la Santé. Connaissant la clairvoyance du ministre de la Santé, nous sommes assurés qu'il saura comprendre que toute somme dépensée au chapitre de l'hygiène dentaire publique entraînera une diminution cent fois plus grande du coût des soins dentaires. Il est donc dans l'intérêt immédiat du gouvernement de prévenir plutôt que de guérir, surtout s'il a l'intention d'assumer les frais de cette guérison.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

Help Wanted

To the Editor:

Could anyone inform me whether and where the following texts may be obtained in Canada:

"An Essay on the Disorder and Treatment

of Teeth" by S. C. Parsons, York, 1830. This treatise is advertised in the *Upper Canada Gazette* of March 3, 1830, page 172, column 1.

Also, perhaps more nebulous but just as eagerly sought is the following text: "Traité de dents saines" by John R. Spooner, 1836. This text is mentioned in L. Lemerl's "Notice sur l'histoire d'art," Paris, 1900, pages 135-6.

C. C. Bourne, DDS,
1414 Drummond St., Montreal 25, P. Que.

Nation-Wide Preventive Program Needed

To the Editor:

I am writing as an individual dentist and not as a representative of any group, primarily because I feel that time is of the essence regarding this matter and because the quest for group approval would be too time-consuming.

It seems clear to me that dentistry is at a crossroad and that decisions must be made. Fence sitting, while an easy way out, can be especially costly in terms of serving the people of Canada in the future.

Our course of action depends on whether we are going to direct our total energy toward a treatment program or whether we are going to launch ourselves on a preventive program. We cannot do both. Since treatment, using New Zealand as a guide, does not really reduce dental disease, we have no choice but to launch a good pro-

gram of prevention *now* — a program that we, as dentists, know will effectively reduce and control dental disease.

The first thing in launching any program is to think positively. For effective patient education the patient must have an open mind. Let us also have an open mind and not think in terms of cost before we actually start, as I am afraid has happened in the past. Any worthwhile cause will gain support as we go along. Goodness knows the number of crack-pot causes in this world that have gained tremendous support primarily because of the quality of their leadership!

The second thing is not to let petty internal politics and private matters of internal policy that have no real interest or concern for the government or public interfere with our one common goal. That goal is a preventive program to improve the dental health of every Canadian.

Thirdly, let us begin by educating Canadians to what dentistry can do for them.

Medicine has made great strides in the past decade to the point where even the most poorly educated person knows that a diseased limb need not be removed and replaced by a prosthetic substitute. On the other hand, much dental disease is treated and expected to be treated by means of replacements.

It is difficult to pick up a newspaper, listen to the radio or watch television without receiving some worthwhile contribution to the gradual elevation of the public's knowledge of what medicine can do. Our counterpart in dentistry is non-existent and will likely continue thus unless we are prepared to do something about it.

Are we being realistic in this age of creeping socialism if we think that politicians—relatively uninformed in dental matters—along with an apathetic profession will come up with a good dental health program?

Isn't the greatest failure of any socialistic program the result of lack of dental education? Doesn't the public in socialist countries accept second rate dentistry only because of the lack of better knowledge? If we expect the public to demand good standards of dental care we must teach people to expect it now before we are trapped into becoming 'muted civil servants.'

Any good program is only as good as its leadership. Gentlemen, are we prepared to make decisions and act as we know we must? It is my guess that you would be pleasantly surprised at the response of the rank and file of the profession once we have spelled out our goal and sound methods of attaining same.

We have perhaps a year or two of reprieve until governments start to overhaul the dental health of our nation. Let us beat them to the punch so that when we do have to speak to them it is with a concrete program, not a hodge-podge of demands which

seem to indicate only selfish personal motives.

Are we prepared to sacrifice now? Are we prepared to take immediate action about the inequality of distribution of dentists? Are we prepared to sit down before a map of Canada and, despite some opposition from treatment-minded individuals in our profession, develop a preventive program which will continue to elevate the profession to the role of educators rather than revert to that of tooth carpenters.

I will not delve further into the mechanics of a good preventive program. Instead, I leave you with the preceding suggestions in the hope that they may generate positive action resulting in better dental health for Canadians.

N. H. Webster, DDS,
1609 Main St. E., Hamilton, Ont.

To the Editor:

One cannot disagree with the principles set out in the letter of Dr. N. H. Webster where, in my observations, a high emphasis is placed on the need for a sound, prompt, well based program of prevention in dentistry rather than on a treatment-orientated program. The Canadian Dental Association recognized this in the introduction to its statement on the recommendations of the Royal Commission on Health Services. Paragraph 6 reads "This approach [prevention and education] to the dental health program can be dismissed as idealistic but to do so is to commit this country to the continuing expenditure of millions of dollars that need not be spent."

Dental caries and periodontic disease produce the greatest tooth loss but they are now known to be preventable or at least susceptible to some level of control. The 'multiple attack' on caries in the form of systemic fluoride therapy, topical application of anti-cariogenic agents and the use of stannous fluoride dentifrices has been projected to produce reductions in caries prevalence of 80-90 per cent. Some compounds for topical application, such as hexa-fluoro-zirconate, have produced a caries reduction of 90 per cent in adults. Periodontic home care produces marked improvement in tissue health, and the teaching of such techniques as tissue stimulation and crevice cleansing and their faithful application can often work miracles of prevention and control.

The practice of dentistry in a decade or two will possess new breadth and scope, provided a monolithic treatment-orientated compulsory dental health program is not forced upon the profession. The fields of caries prevention, prevention and treatment of periodontic disease, preventive and interceptive orthodontics, and treatment of aesthetic problems will be the major treatment and preventive services of the future.

Prevention is indeed the answer. It is not enough to talk about it.

*R. A. Clappison, DDS,
Chairman, CDA Dental Services Committee*

To the Editor:

The general 'preventive' theme of Dr. Webster's letter deserves commendation and would, undoubtedly, receive endorsement from the membership of the Canadian Society of Dentistry for Children.

The most encouraging aspect is that Dr. Webster, an active practitioner, is expressing the essential frustrations that are common to many practising dentists. Too often at the end of a treatment day we have accomplished one step forward and two steps backward in our net dental health treatment.

The sad fact is that, to date, Canadian politics in the health field seem to revolve around a massive poker game, each party raising the ante by increased treatment benefits. As part of his political education, the voter has been encouraged to equate unlimited treatment with optimal medical and dental health.

There are encouraging signs, however, that governments (and the people) are beginning to see the complexities of achieving a higher national health status. The Hall Commission, although receiving criticism from the dental profession for a most impractical treatment program, probably deserves a few more bouquets from practising dentists than it has received. Certainly the Commission stood four square behind research and contemporary preventive measures such as fluoridation and school educational programs.

The Canadian Dental Association, in a re-

cent submission to the federal government, has clarified the profession's attitude to prevention by favourably acknowledging those sections of the Hall Report generally consistent with our views. At the same time it has firmly opposed with articulate substantiation those treatment measures which would not be, in the full context, conducive to an improvement of the dental health picture.

Since the key to an effective national preventive program will be active provincial and federal government collaboration, we should intensify our efforts to support the hypothesis that treatment programs, as compared with preventive programs, are ineffective.

Let us not be naive. Governments, both provincial and federal, are most assuredly in the health field to stay. What greater challenge could there be to the dental profession than to co-operate intelligently with these governments to produce an imaginative preventive program which would offer the people of Canada a substantial gain in dental health?

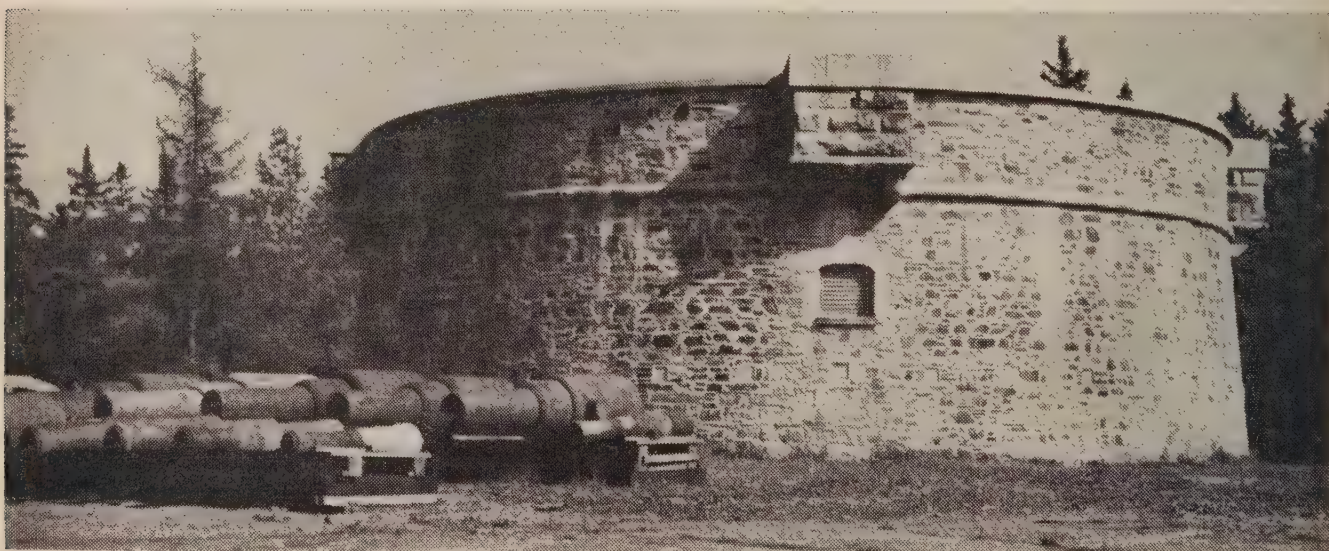
Where should we start?

To my knowledge no agency in or out of the profession has made any complete and reliable studies on the existing dental health status of children in various representative areas across the nation. Moreover, we do not have an accurate concept of the effort required to upgrade these young people to optimum dental health. Surely this is a project that should be initiated by the profession, then proposed to governments for mutual enlightenment and as a basis for the ultimate elevation of our national dental health.

*P. E. Currie, DDS,
Chairman,*

Canadian Society of Dentistry for Children.

Are you going to the National Convention in Halifax in June? If so, don't miss the Martello Tower located in Point Pleasant Park.



The evolving role of dentistry in a changing society

P. S. Christie, DDS, Halifax, Nova Scotia*

During the past two years the dental profession, as individuals and at various organizational levels, has spent a great deal of time and energy studying the recommendations of the (Hall) Royal Commission on Health Services.

Aside altogether from the quality of the Commission's recommendations, this effort and the effort which preceded it in formulating briefs to the Commission have had a most beneficial effect. Ideas, beliefs and concepts about the proper position and function of dentistry in society which were incipient, or partly developed, or expressed in uncorrelated fashion have had to be crystallized and related. Some basic charting of desirable future development has had to be done. The priorities of such development, its course and organizational technique have had to be considered.

All this effort was precipitated by the threat of change, first implied by the establishment of the Royal Commission, and later expressed in its recommendations.

The activities of the Royal Commission crystallized the threat of change that had been potential for the profession in the philosophy of the welfare state and in the radical changes being forced by the scientific and technological revolution.

Our position relative to society has been largely the classic one. The profession developed gradually in response to a need. It has been carried forward partly by the momentum of its own existence, partly as a consequence to increasing public appreciation of the value of dental services, and partly through practical application of the idealistic projections of individual dentists.

In practice we have operated in an atmosphere of complete freedom of action, limited only by an ethical code adopted by the profession voluntarily and by laws enacted by the legislatures to ensure minimum standards for the protection of the public.

While the net effect of this laissez-faire system has many good and beneficial aspects, it cannot be denied that it also has deficiencies. We have been told from time to time by competent men outside the profession whose perspective differs from ours that this condition of almost untrammelled freedom is unlikely to continue for long, that we will probably be required to sacrifice some individual freedom in order to advance the common welfare. Experience in other countries and in other areas of human endeavour fortifies the validity of this contention.

To say that we live in a changing society

has become a cliché. The mind is so adaptable, and successive changes come upon us with such rapidity, that we have come to take them quite casually. A feat which less than a decade ago filled us with wonder and unease is now in its later and far more exacting development regarded as a matter of course. Sputnik 1 held the world's attention; the 'walk in space' now arouses interest largely as a critical international competition.

We are told that scientific and technological change is constantly accelerating, that it is in the nature not of an arithmetical but of a geometrical progression.

We are also told that the feedback effect of the scientific and technological revolution upon social organization is only beginning to be felt. It is already evident that society is hard pressed to contain it, to adopt the favourable and reject the unfavourable, to retain the beneficial aspect of what we have and graft to it the beneficial portion of the new knowledge. Dislocations of considerable degree have already occurred. Reorganization has been required in education, for instance, to catch up with change already effected and to prepare for further change.

The profession has benefitted from, and participated in, the scientific revolution. Within the space of my professional lifetime the horizons of dentistry have expanded enormously. Twenty-five years ago the opportunity available to a graduate was very limited. In the interim preventive techniques have become available and these are being steadily developed. Opportunities for teaching in the clinical and the preclinical areas are abundant. The specialties have developed in number and scope. Public health dentistry has become a reality, and research has increased, as indicated by funds expended, by a factor of five in the last decade. According to the Hall Report the productivity of the dental profession in Canada has increased by two and one-third times in the past 30 years. Who would be so rash as to predict the changes that the next decade or two will bring?

As a part of a society that is undergoing rapid alteration and experiencing scientific and technological transformation within its own sphere, it is abundantly

clear that dentistry will inevitably be obliged to alter, both in degree and in kind, its relationship to the society which it serves.

We are in fact becoming involved as a profession in a social equation—an equation which, as the history of the past century and a half shows, is one of the major concerns of government and society. This equation involves the always changing balance between the needs of men and the freedom of man. By how much can a man's activities be circumscribed by rules and directives in order to satisfy the legitimate needs of his fellows? At what point does the loss of individual diversity and initiative outweigh the gain from provision of approved services?

The forces exerted upon the profession to change its relationship to society are very real. Pressure from above, stemming from government and from the prevailing social philosophy, is still in the nature of potential energy but can become kinetic energy at any time. Pressure from below—and this is the kinetic energy symbolized by the legalization of mechanics' prosthetic services in two provinces and the threat of similar action in others—indicates that changes must be made voluntarily or that they will be forced.

It gives perspective to our own problems in Canada to view what is happening across the border in the United States. Over the opposition of the medical profession, to which the dental profession allied itself, social security legislation was passed by the US Congress in 1965 establishing the so-called medicare program for the aged.

After tracing the history of this kind of legislation, Dr. F. A. Pierson in his presidential report to the American Dental Association's House of Delegates made no bones about predicting that there would be more of the same. "Under the thrust of public demand, political considerations, the rising standards of national life and the inevitable growth of government itself, there is no question that determined efforts will be made to expand health care benefits," he declared.

Evidently the profession in the US feels pressures as we do, perhaps somewhat different in kind but unquestionably pushing in the same direction.

President Pierson proposed that the ADA and its constituent and component societies develop a dental health care plan for children, based on private practice and operated through the dental services corporations. The resolution which he proposed is as follows: "That the Council on Dental Health, the Bureau of Dental Health Education, the Council on Legislation and other agencies of the Association be directed to develop a national program for children, particularly the needy and underprivileged, in order to make the benefits of modern dental health service available to all children of the nation." This resolution passed the House of Delegates without a dissenting vote.

Society in general, in its present state of change, is unlikely to sympathize with a profession which tries to maintain a status quo not in harmony with the "legitimate aspirations of the people" as the Royal Commission phrased it.

Indeed, the pronouncements and concepts of organized dentistry about its role are at variance with the indefinite continuation of a pattern of dental practice which, according to the best estimate, reaches only one-third of the population in any one year and which demonstrates a great disparity of geographic distribution.

The dental profession has been at some pains for a considerable time to point out to any who might listen, including government authorities, that dental care is an essential and integral part of general health care. We have asserted that dental disease, while not important in terms of mortality statistics, is physically and psychically debilitating and, therefore, does have significance for the well-being of the individual and for the economic welfare of the country.

It, therefore, seems reasonable to conclude that the profession, if it believes in its own maxims, will not remain content for long with the present level of provision of dental care, and it further seems reasonable to conclude that society, if it pays any heed to the statements of organized dentistry, will also not remain content for long with the present level of provision of dental care.

In this connection society is often accused of not knowing what is best for

its own welfare since it cannot appreciate the difficulties or follies which are inherent in its demands. To a great degree this is probably true, but this objection must be used with care. We must remember the words of the makers of the American federation and in our lesser sphere exhibit "a decent respect to the opinions of mankind." We must remember that many of the social changes which have occurred in this century were considered impossible or morally and socially debilitating when first proposed. The opposition to social change—change which in retrospect so often appears to have been progress—takes some bizarre and unrealistic positions.

In 1880 certain proposals were made to alleviate in a very moderate degree the incredible conditions in the London slums. The man who later became famous as General Booth of the Salvation Army proposed setting up hostels to look after the human derelicts so numerous in these slums. His critics complained that his proposals "would ignore the fluctuations of business prosperity, . . . would hamper the free flow of labour, whittle trade union membership, cripple existing religious and charitable societies, and the family's dominion, invade personal rights and usher in an era of despotic socialism." General Booth's recommendations nevertheless prevailed and none of these frightening predictions were realized.

There are those within the profession who want to resist to the utmost any change in the social orientation of dentistry. They seem to believe that, having progressed thus far, we have reached an optimal position which must be maintained. Assuming the present to be the best obtainable ignores the process of change which produced the present situation. Continuing change may produce further improvement. Rationalizing the resistance to change by reference to social and economic theories of the late eighteenth century is not good enough. The harsh realities of subsequent experience have modified such theories almost beyond recognition. To rationalize in this way is to disregard completely the modern integration of social and economic practices which has resulted in a high degree of social responsibility by even

the greatest, and originally the most free-wheeling, of industrial corporations. Surely we cannot afford to be less socially conscious than industry.

To adhere blindly to the status quo and oppose change is a forlorn hope foredoomed to failure. We cannot crawl into a hole and, having pulled the cover down, let the world go by. Our seeming refuge would quickly become a tomb. For, as Lewis Mumford has stated so aptly: "One cannot effectively keep the possessions one has unless one has the courage to put them in circulation and devote them to fresh enterprises and adventures."

The logic and the facts of the situation are inescapable. If the aspirations of the profession and of society are to be fulfilled, a change in the orientation of dentistry to society is inevitable.

The question remains, "How is this to be accomplished?"

The Royal Commission made recommendations which the Commissioners believe will answer this question.

Certainly their proposals regarding education and research are essential parts of the answer and these have received general acceptance. However, the major recommendations regarding dental care met with the categorical opposition of the profession.

Essentially, the Hall Report calls for a revolution in the means of providing dental care. A vast change is proposed in which much that has been built up over the years will be discarded and replaced, in a period of 10 years, by a mechanism which will dwarf in size, by a factor of 10 or more, the program in New Zealand from which it draws its inspiration.

There is no comparable plan in existence which would allow a prediction of the efficacy of the proposed program. Yet, if this program were introduced and found wanting, its termination would be virtually impossible because of the dislocation and the costs involved in its establishment.

The profession is rightly alarmed at this prospect and correctly distrusts the imposition of a sort of dialectical solution upon a very practical problem.

Aside from the techniques of doing it, we are agreed that to establish a program devoted in large degree to treatment of

all or part of the populace would be a mistake. Disregarding the very doubtful efficacy indicated by numbers it would, in the light of scientific advances on all fronts, prove to be a frustrating, enervating, endless procedure.

The CDA statement on the Hall Report explains that "a program that concentrates on treatment alone does nothing to decrease the prevalence and incidence of dental caries. The status of dental health measured in terms of the average number of decayed, missing or filled teeth remains unchanged."¹

A report of the dental condition of New Zealand military recruits supports the CDA's contention.² In an examination of recruits made in 1958, and compared with examinations made in 1952 and 1954, the number of DMF teeth per recruit was 18.2 in both the group who had received dental treatment up to the time of examination and the group which had received no dental treatment at all. The report notes that, in comparison with previous surveys of recruits, the 1958 recruits had received more regular treatment which resulted in a decrease in the average number of missing teeth and an increase in the average number of filled teeth but that the average number of decayed teeth had not decreased.

Looking at the problem of control of dental disease over the long term and considering the probability of discovery of further effective preventive techniques, it is almost a certainty that the adoption of a program devoted primarily to reparative treatment would bring upon our profession, whether it is at fault or not, condemnation for failure to keep its thinking and its objectives in concert with biological concepts.

Last year the workshop discussions of the sixth annual conference of American dental deans produced the following statement: "If one accepts the premise that the traditional dental diseases may be reduced significantly in the next several decades, dental education must change. Through modern methods of caries control, the disease may be reduced by as much as 90 per cent. If this occurs, it follows that present emphasis on the acquisition of dental skills in dental education will be diminished. It

appears likely that new forces will then be found in the fields of molecular biology, oral biology, the treatment of orofacial anomalies, the recognition and treatment of the oral mucosa, etc." I am not competent to judge the degree of accuracy of this tentative prediction. It is, however, worthy of notice as an indication of the impact which experimental investigation may well have upon dental practice in the future.

We have, therefore, as a profession advocated, in response to the recommendations of the Royal Commission, that the attack upon dental disease be made through research and prevention, and that a Children's Dental Health Grant, if established, be used for surveying dental needs and establishing permanent public health programs.

This suggestion has the twin virtues of establishing a statistical basis upon which to build policy—a basis which is lacking at present—and of reducing, by preventive measures, the reparative and corrective treatment load.

This suggestion also means that the problem would be attacked scientifically on a nation-wide basis. Such a program can be advocated with vigour and confidence because it is properly founded and contains the possibility of eventual control of dental disease. Such a prospect is stimulating and challenging and would give scope to all the energy and intelligence the profession can marshal.

Whether this proves to be a program which attracts government, or one that is politically feasible, remains to be seen. One must assume that sooner or later government will actively interest itself in the problem of dental disease; the emphasis by the Royal Commission seems to assure this. At that time it is quite possible that the proposal for a preventive program may not be acceptable, that the politically feasible program may be a treatment program.

In a treatment program the great danger will be, as I have said, the imposition of a sort of dialectical solution upon a very practical problem. The solution that works out well on paper and that pleases the sociologist and statistician may prove in practice to have major deficiencies.

As a profession we should do all in our power to avoid the imposition of a vast and dislocating innovation which has not been tested in whole or in its parts.

We are accused, along with other professions, of being conservative, of being afraid of innovation. Perhaps a more accurate label would be pragmatic. Our practice procedures are founded not upon doctrine but upon experience—experience which is attuned to the realities of our environment.

In considering a dental treatment program, no matter what its scope, whether it be for a whole or a part of the population, this pragmatic attitude should be maintained. We should ask for pilot studies, for assessments on a limited scale, for consideration and testing of alternatives in order that an adopted plan may have the authority of practicality.

A start has been made on this kind of approach. In recommending the use of the dental nurse, the 'new auxiliary,' the Royal Commission had at its disposal no data comparing the productivity of the system it proposed with that of any other system of utilizing auxiliaries. Organized dentistry has had under consideration for several years, and under pilot study more recently, the question of expanding the duties of dental auxiliaries. The CDA statement recommends that an "independent investigating committee be established to study all aspects of auxiliary dental services."¹

Congressman M. R. Laird, a Republican representative with an intimate relationship to health legislation in the US, said before the ADA House of Delegates last November that the health professions and government are joined in a "cautious partnership. I call it a 'partnership' because, however much disagreement may sometimes occur on method, only a few people on either side are cynical in professing their health programs; they offer them because they firmly and honestly believe them to be the best solution there is; in other words, a partnership or mutuality of interest. I call it 'cautious' because every new program, every suggested change must be judged meticulously and explored exhaustively to discern its potential effect on the total pattern of health service provision in the United

States, which traditionally and rightly rests on the private practice system."

It is said that, by attempting to influence legislation and government policy so far as dental health care is concerned, we merely encourage politicians to think that we do not oppose and that we meekly accept whatever is proposed by the state. If this is so, the profession would be well advised to oppose adamantly any encroachment by the state upon the preserves of private practice. Rigid opposition, without alternative or modifying suggestion, would then emerge as the best way to prevent the imposition of "the cold, dead hand of government on our highly motivated operations."

But experience in other countries lends no support to this contention. The latest experience comes from the United States and I quote again from Dr. Pierson's presidential report: "The health professions have had a convincing and painful lesson that unremitting opposition to proposed legislation without constructive counter-proposal is a blunt and ineffective weapon and that it is relatively useless in a counter-attack. If this lesson has been learned well, the profession and the Association must advance the ideas which will channel future growth into programs that will ensure the highest quality of service, safeguard the rights of the profession in the areas of its competence and maintain the independence and integrity of the private practitioner and of private practice."

The inevitability of government intervention in the provision of health care may be questioned. Nothing is certain, of course. The desirability of such intervention may also be questioned in the context of opposition to the philosophy of the welfare state. There are those who do fervently oppose governmental activity in any form so far as dentistry is concerned. Perhaps a case may be made for this opposition and for retention of a laissez-faire free enterprise system in dentistry if one subscribes to Samuel Johnson's dictum that it is better that only some should be happy than that all should be unhappy. But this raises new and important questions. How do we identify who the 'some' should be? And what about soci-

ety's reaction to this proposal and to the profession?

Valid arguments in support of such a position may perhaps be possible, but they have not been presented to the Association. All we have had are alarms, excursions and noises off-stage. I suggest that presentation of the case for continuation of a complete free enterprise system in dentistry, carefully prepared, with consideration of the implications and effects, would precipitate a debate which might well clear the air.

A dynamic and growing profession is characterized by "ability to react [to a stimulus] in such a way that the integrity of the organism is preserved." This is the very essence of life. We have reacted vigorously, I think, to the stimulus of the Hall Report. In the western provinces there has been a vigorous and sustained reaction to the stimulus of the legislation, attempted or successful, of the services of the mechanics. In my own province of Nova Scotia an attempt to legalize the services of the mechanics evoked a vigorous and currently successful reaction from the profession. In Manitoba and British Columbia a new extremity, the denture clinic, has sprouted in response to the stimulus.

I suggest that while these stimuli may cause us anxiety for the moment, we may view them, in retrospect, as having had a beneficial effect in prompting the profession to define its position in society, to consider carefully its objectives and to function and react as an organic unit.

There is some reason to be concerned about the professional organic unit, to wonder if we are cohering as well as we might.

There has been some difficulty of late in containing diverse opinion. It would be as well to remind ourselves, perhaps, of the principle involved here, a principle which is basic to our governmental constitutional process. It is a highly sophisticated concept and its practical application is only possible for the politically literate. The truth of this assertion can be seen in the frequent breakdown of this constitutional process when it is transplanted to the emerging nations.

According to our system, those in power

agree to tolerate opinion which differs from, and is critical of, official policy. They agree to not liquidate the opposition by police or military action.

In turn the opposition consents to abide by official policy, to remain within the constitutional process; it renounces the right to withdraw into rebellion.

In short, policy is decided in the legislative chamber and not in the field. No one sat down and thought this process out in detail; it evolved, at great cost in blood, over the centuries. It is intensely pragmatic.

Although our area of operation is limited, the same principle applies to us as an association. The CDA needs diversity of opinion within its membership in order to develop policy and reach correct decisions. Critical opinion gives strength by pointing out fallacies in policy, by suggesting alternate policy and by causing the Board of Governors to re-examine its premises in support of a given position. The Board has a responsibility for giving thoughtful consideration to criticisms that are seriously directed towards it.

On the other hand, the critic also has certain responsibilities as a part of the process. It is incumbent upon the critic to become familiar with the Board's attitude on the point in question, not by hearsay but by studying the reports and,

if necessary, questioning the officials. He who censures must define his own stand clearly and in relation to the facts which surround the question at issue. He must formulate his criticism as dispassionately as possible so as to avoid the errors of exaggeration which high emotion generates. And finally, the critic must be content to abide by the Board's reaction to his criticism, at least for the time being, accepting its decision with equanimity if it is against him, secure in the knowledge that the legislative process has functioned for him.

The matters which come before organized dentistry may be contentious, and may require the most careful search for the proper position for the profession. We can with profit all take to heart Cromwell's famous remark when his patience became exhausted by the inflexible attitude of some Scottish clerics: "My brethren, I beseech you, in the bowels of Christ, think it possible that you may be mistaken."

*President, Canadian Dental Association.

1. Canadian Dental Association. Statement of the Canadian Dental Association on the recommendations of the Royal Commission on Health Services. May 28, 1965.
2. Davies, G. N. The dental condition of compulsory military training recruits: third survey. New Zealand D.J. 55:78, 1959.

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Compulsory Water Fluoridation • The introduction of [water fluoridation] to date has been surrounded with a great deal of controversy and acrimonious debate. In part, its non-introduction has been assisted by the peculiarities of the use of the legal-political system of plebiscites to ratify its introduction. The evidence put forward to date by competent dental researchers leaves little justification for its non-introduction as a public health measure comparable to the pasteurization of milk, filtration of public water supplies, and compulsory vaccination against smallpox. In view of the state of the dental health of the population, the present lack of supply of dental services and the increasing demand for these scarce services the dental associations and the provincial and federal public health departments should take immediate action to see that the legal means is made available to make the fluoridation of public water supplies compulsory. — B. A. McFarlane. Dental manpower in Canada. Royal Commission on Health Services. Ottawa, Queen's Printer, 1964.

Availability and utilization of dental services by rural Manitoba children

C. H. McCormick,* DDS, DDPH, Winnipeg, Manitoba

A dental survey of 12,293 rural Manitoba school children revealed that more than half (57 per cent) obtained some dental care, though not necessarily all the treatment they required. Proximity of a dentist had no apparent effect on the amount of treatment sought or received. Many (38 per cent) of the children required immediate dental care. Eighty-three per cent of available occlusal surfaces in their lower first permanent molars had cavities. Apparently the need for treatment and proximity to a dentist are offset by other deterrents which interdict the acquisition of dental care.

Il ressort de l'étude de 12,293 écoliers ruraux du Manitoba que plus de la moitié (57 pour cent) ont obtenu des soins dentaires, sans pour cela avoir nécessairement reçu tous les soins requis. La proximité d'un dentiste n'a aucun effet apparent sur la proportion de soins recherchés ou reçus. Un grand nombre d'enfants (38 pour cent) ont besoin de soins dentaires immédiats. Quatre-vingt-trois pour cent des surfaces occlusales de leurs premières molaires permanentes inférieures présentent des cavités. Le besoin de traitement et la disponibilité d'un dentiste sont apparemment contrebalancés par d'autres facteurs négatifs qui empêchent les enfants de se faire traiter.

In 1965 the Dental Bureau of the Manitoba Department of Health conducted a study of grade 1-8 children in 20 randomly selected rural municipalities to

determine the effect of the relative availability of dental treatment upon utilization and upon the dental health of the children.

Dental caries is widely regarded as being more prevalent in rural than in urban areas, and more serious among children of lower socio-economic strata. The reasons commonly ascribed for this are the relative unavailability of dental treatment in rural areas and the failure of conventional dental public health educational programs to convince parents of the importance of dental health and the value of preventive and conservative treatment for their children.

This study indicates that relative unavailability of dental treatment in rural areas is apparently less significant than was previously assumed. Instead, lack of parental motivation to seek preventive and conservative treatment for children emerges as a major factor when poor dental health is encountered in rural children.

Routine classroom dental inspections and notification to parents of a child's dental defects do little to encourage positive action unless treatment facilities are made available. To the contrary, such a program may further aggravate hostility over a situation that cannot be readily resolved. Therefore, we did not notify parents of their children's defects except when a dentist practised in the immediate area or when treatment facilities of the provincial health department were utilized by the community.

METHOD

Twenty rural municipalities were randomly selected from the 190 municipalities listed in the 1964 edition of *Municipalities and Officials of Manitoba* published by the Manitoba Queen's Printer. Eighteen incorporated villages and towns situated within the selected municipalities were included in the survey. A total of 12,293 grade 1-8 (age 6-15) school children from these communities were dentally inspected during the spring of 1965 (Table 1).

Data collected included information on children with premature extractions, children with fillings, children requiring immediate dental attention for relief of pain and acute infection, and findings on the

TABLE 1 Grade 1-8 school population of municipalities (RM), incorporated villages (V) and towns (T) included in the 1965 rural Manitoba dental survey.

Arborg	V, 216
Beausejour	T, 552
Bifrost	RM, 249
Brokenhead	RM, 484
Carberry	T, 251
Carman	T, 490
Cartier	RM, 376
Clanwilliam	RM, 316
Cornwallis	RM, 100
Crystal City	V, 181
Dufferin	RM, 283
Elkhorn	V, 161
Emerson	T, 189
Franklin	RM, 549
Gilbert Plains	RM, 319
Gilbert Plains	V, 266
Glenboro	V, 243
Grandview	RM, 318
Grandview	T, 225
Grey	RM, 591
Killarney	T, 371
Louise	RM, 183
MacGregor	V, 209
Minnedosa	T, 394
Minto	RM, 156
Montcalm	RM, 538
Morris	RM, 726
Morris	T, 333
North Cypress	RM, 214
North Norfolk	RM, 487
Pilot Mound	V, 192
Riverton	V, 233
St. Claude	V, 297
South Cypress	RM, 58
Strathcona	RM, 234
Turtle Mountain	RM, 366
Virден	T, 730
Wallace	RM, 213

health of the lower first permanent molar. All inspections were done in classrooms using artificial light, mouth mirrors and explorers. Three dentists participated in these inspections.

Findings from all the grade 1-8 children included in the survey and a breakdown for grades 1, 2 and 3 are reported in Table 2. This table also records information from 10 of these municipalities

TABLE 2 Dental findings from 12,293 grade 1-8 children in 20 Manitoba rural municipalities surveyed in 1965.

	All 20 municipalities				10 municipalities with resident dentist
	Grades				Grades
	1-8	1	2	3	1-8
No. of children	12,293	1,579	1,548	1,483	5,933
X	4,004 33%	367 23%	484 31%	520 35%	1,974 33%
F	4,772 39%	319 20%	482 31%	508 34%	2,417 41%
IC	4,663 38%	686 43%	673 43%	646 43%	2,273 38%
X and/F	7,049 57%	599 38%	800 52%	849 57%	3,551 60%

X = Children with prematurely missing deciduous or permanent teeth. Includes (1) deciduous teeth lost a year or more prior to normal exfoliation time, and (2) locations where gingiva has healed although a permanent successor has not yet erupted.
F = Children with one or more restorations.
IC = Children who require immediate care.
X and/F = Children with prematurely missing teeth and/or restorations.

(including Cornwallis) which have one or more resident dentists. Cornwallis surrounds the city of Brandon which is served by 11 dentists.

The fairly consistent percentages of children who required immediate care induced us to examine a smaller sample of these children in order to determine if there were any relationship between demand for dental care and children requiring immediate care. A group of 199 children was therefore selected at random from the original 12,293 grade 1 - 8 pupils. For this purpose schools were arranged by alphabetic order of municipalities and towns, and class lists for each municipality were then sorted by consecutive grades (Tables 3 and 4).

Findings on the condition of lower first permanent molars in the entire grade 1 - 8

school population and for grades 1, 2 and 3 are presented in Table 5.

All municipalities, towns and villages with a local administration were provided with a report of the findings pertaining to their particular jurisdiction. These reports were phrased so that they could be readily interpreted and discussed by municipal officials and used by any media interested in promoting dental health. School principals, inspectors and school board officials received individual reports. Medical officers of health and local dental practitioners were also provided with reports.

OBSERVATIONS

One-third of the grade 1 - 8 children had had premature extractions, while 39 per cent had one or more fillings in place in the mouth (Table 2). Nevertheless, 57 per cent of these children exhibited evidence of either a premature extraction and/or a filling in place. This suggests that a substantial proportion of children living in rural Manitoba do have access to dental care when treatment is desired or when parents are motivated to seek professional care. But this does not mean

TABLE 3 Dental findings from 199 grade 1-8 children selected at random from 12,293 children described in Table 2.

No. of children	199
X	73 37%
F	80 40%
IC	71 35%
X and/F	126 63%

TABLE 4 Dental findings from Table 3 on the 71 (IC) children requiring immediate dental care and the 126 (X and/F) children under dental supervision at some time (grades 1-8).

	Immediate care (IC)		Dental attention at some time (X and/F) *	
No. of children	71		126	
D	71	100 %	120	95 %
X	31	44 %	69	55 %
F	11	15 %	73	58 %
MF	5	7 %	28	22 %
X and/F	39	55 %	120	95 %
NA	32	45 %	126	100 %
TTO (X)	28	40 %	43	34 %
FO	6	8 %	53	42 %

*Includes IC.
D = Children with one or more decayed teeth.
MF = Children with prematurely missing and filled teeth.
NA = No dental attention or action.
TTO (X) = Terminal treatment extractions only.
FO = Fillings only.

that all necessary dental treatment is rendered for a child. On the contrary, 38 per cent of the children required immediate dental care, having teeth that were on the verge of, if not already, causing discomfort and pain.

Grade 1, 2 and 3 children, as expected, showed a gradual progression of premature extractions (from 23 per cent in grade 1 to 35 per cent in grade 3), and in fillings (from 20 per cent in grade 1 to 34 per cent in grade 3). A greater proportion of younger children required immediate dental attention (43 per cent). The percentage of children who had received some dental treatment (extractions

and/or fillings) rose from 38 per cent in grade 1 to 57 per cent in grade 3.

The dental condition of the 5,933 children who live in the 10 municipalities served by resident dentists (Table 2) is very similar to that of the entire group of 12,293 examined in this survey.

The data from the smaller sample of 199 grade 1 - 8 children are also comparable to those of the entire group of 12,293 children (Tables 3 and 4).

The attitude toward preventive dentistry of the 71 children (Table 4) who required immediate dental care was almost wholly negative. No action had been taken by nearly half of these children

TABLE 5 Dental findings from lower first permanent molars of 12,293 grade 1-8 rural Manitoba children surveyed in 1965.

	Grades			
	1-8	1	2	3
No. of children	12,293	1,579	1,548	1,483
Lower first molars examined	21,783	2,438	2,890	2,935
Occlusal cavities	18,024 83 %	1,554 64 %	2,193 75 %	2,363 80 %
Buccal pit cavities	7,856 35 %	589 24 %	858 29 %	965 33 %

(32) while 28 had received only terminal treatment — perhaps because the child had complained of a toothache. This would suggest that 45 per cent of rural Manitoba children on the verge of, or already, suffering pain and discomfort do not seek or receive dental care. Forty per cent of the children requiring immediate care have had access to treatment as indicated by the premature extraction of teeth. A further small percentage (8 per cent) of these children have had fillings.

The maximum number of lower first permanent molars to be found in the larger group of 12,293 school children would be 24,586. Only 21,783 molars were present—a deficit of 2,803.

At the time of this survey grade 1 and 2 children were predominantly six to eight years of age. If we consider 926 missing molars in these children as not yet erupted, there still remain 1,877 unaccounted molars in grade 3 - 8 children that must be presumed to have been prematurely extracted as a result of decay and lack of proper attention. Stated in percentages, grade 1 - 8 rural Manitoba children have lost 8 per cent of their lower first permanent molars.

The caries susceptibility of these teeth is severe. Eighty-three per cent of the available occlusal surfaces had cavities. A further 8 per cent of these teeth were prematurely missing. Consequently, 91 per cent of the available lower first permanent molars had experienced tooth decay in one form or another.

Teeth are subjected to caries attack immediately upon eruption. Sixty-four per cent of rural Manitoba grade 1 children have first permanent molars requiring remedial dental treatment. At the grade 3 level 80 per cent of the children have had these teeth attacked.

DISCUSSION

Fifty-seven dentists practise in rural Manitoba outside the metropolitan area of Greater Winnipeg. Twenty-five of these dentists are located in the five major centres with populations of over 5,000 (Brandon, Dauphin, Flin Flon, Portage-la-Prairie and Selkirk). A third of the

dentists in rural Manitoba are over 60 years of age. The demands placed upon these rural dentists influence the type of treatment they are able to provide to the public. Comprehensive dental treatment for all children and adults would be prohibitive.

Many (57 per cent) rural Manitoba children do have access to dental treatment. But they do not necessarily receive all the treatment that they require. Nevertheless, the ratio between children with extractions and children with fillings (33:39 per cent) indicates that our rural dentists genuinely attempt to practise conservative dentistry despite the heavy demands for their services.

Results from the 10 municipalities with resident dentists indicate no difference in the amount or type of dental care provided for children from these communities. The number of children requiring immediate care was the same as for all rural Manitoba children. The close proximity of a resident dentist did not affect the amount of dental attention received or sought.

The 1961 Survey of Dentistry in the United States¹ indicated that 28 per cent of 5 - 14 year old children had never seen a dentist. In rural Manitoba this figure is higher (43 per cent), although not out of line when other factors are taken into consideration.

One significant conclusion from this survey is that there are underlying factors that discourage many parents and children from requesting or seeking the services of a dentist despite the need for treatment, discomfort, ability to pay and access to a dentist. Nearly half of the children requiring immediate dental care for the relief of pain and discomfort did not seek or receive dental treatment. When action was finally taken by the parent, the treatment of choice consisted of extraction. The 38 per cent of all grade 1 - 8 children requiring immediate care may represent a hard core of disinterested, unmotivated and unco-operative individuals. The U.S. Survey of Dentistry indicated that a little over 40 per cent of the population visited a dentist annually and received care ranging from adequate to barely minimal; an-

other 30 per cent received some care and the rest received virtually none.

The Royal Commission on Health Services² has commented on the fact that there is a direct relationship between the demand for dental treatment and a group's educational and economic level. The more highly educated middle and high income groups utilize health services more extensively than those from lower economic and educational strata.

The results of combining the survey and involving local municipal officials have been very encouraging. Several towns have made further inquiry into the problem, and two medical health officers are promoting action to utilize available facilities. So far, none of the rural dentists has commented on the survey results forwarded to his community. A private citizen from one area praised the services which the dentist in her community was providing and claimed that our report was unfair to her dentist. Last fall we released a further report which dealt with the general picture throughout our province. Copies of this later report have been sent to all municipalities and towns included in the survey. This has served to renew interest in promoting dental health.

SUMMARY AND CONCLUSIONS

Dental health education and the provision of dental treatment require a new approach if any inroads are to be made in resolving this deplorable situation. The Manitoba health department has therefore devised a method which simultaneously assays the dental needs of

individual communities and involves officials who are in a position to take positive action.

A dental survey of this kind was conducted in 20 randomly selected rural Manitoba municipalities. This survey involved 12,293 grade 1 - 8 school children. The following conclusions emerged from this investigation:

1. More than half (57 per cent) of rural Manitoba school children seek and obtain some dental treatment, but they do not necessarily receive all the treatment they require.

2. Dentists attempt to treat those children that demand attention. The ratio between children with extractions and children with fillings (33:39 per cent) indicates that the treatment received is constructive though not comprehensive.

3. Proximity of a resident dentist does not affect the amount of dental attention sought or received by rural Manitoba school children.

4. Many rural children (38 per cent) require immediate dental care for the relief of pain and discomfort.

5. These last two findings suggest that other and more important deterrents operate in the acquisition of dental care.

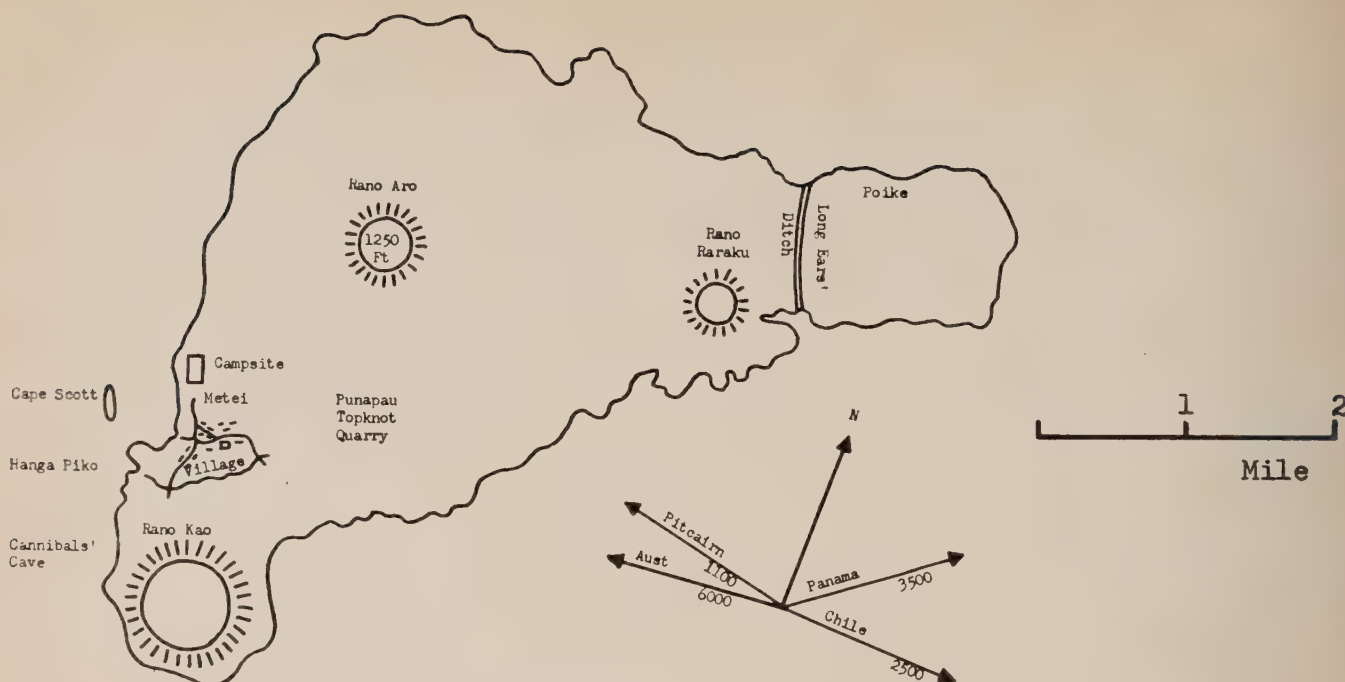
6. The caries susceptibility of lower first permanent molars is extremely high in these children. Eighty-three per cent of available occlusal surfaces in these teeth had cavities.

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1. Survey of dentistry, the final report, Commission on the Survey of Dentistry in the United States. Washington, American Council on Education, 1961.

2. Canada, Royal Commission on Health Services, 1964—Vol. 1, Ottawa, Queen's Printer, 1964.

411 Norquay Bldg



Sketch map of Easter Island. (A. G. Taylor, RCDC Quarterly 6:2:15, 1965.)

Dental conditions among the inhabitants of Easter Island

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A Royal Canadian Dental Corps officer who last year accompanied a Canadian medical expedition to remote Easter Island, a Chilean dependency in the South Pacific, examined 236 islanders aged 18-79. Decayed and missing teeth accounted for 95 per cent of the high average DMF score of 17.57 DMF teeth per person. Inadequate oral hygiene and lack of restorative treatment are the prime causes of this deplorable situation. Only by a sustained dental health program will the dental health of Easter Islanders achieve lasting improvement.

Un officier du Corps dentaire royal canadien qui faisait partie de l'ex-

pédition médicale canadienne, partit l'an dernier à destination de l'Ile de Pâques — une île lointaine du Pacifique sud, appartenant au Chili, — a eu l'occasion d'y examiner 236 indigènes âgés de 18 à 79 ans. Les dents cariées et manquantes représentaient en fait, les 95 pour cent de la haute moyenne DMF établie: 17.57 par personne. Les causes d'une situation aussi déplorable étaient bien entendu, une hygiène buccale inadéquate, et l'absence de soins et de traitements. Ce ne sera qu'en appliquant un programme de santé dentaire rigoureux que l'on réussira à améliorer de façon durable la santé dentaire des habitants de l'Ile de Pâques.

Easter Island, an isolated speck in the Pacific Ocean, lies 2,230 miles west of Chile and 1,100 miles from its nearest inhabited neighbour, Pitcairn Island. It is a volcanic island, roughly triangular in shape with a total area of 55 square miles. Easter Island was named by the Dutchman Roggeveen who landed there on Easter Sunday, 1722.

Rapa Nui, as the natives call their island, was first settled about 400 A.D. The present population dates back to the 14th century when a group of settlers arrived there from somewhere in the Polynesian Triangle, probably the Marquesas group. The Polynesians annihilated other inhabitants of the Easter Island during an intertribal war which occurred about 1670. In 1863 a smallpox epidemic reduced their numbers to about 110. A census, taken in January 1965, showed a total of 958 natives.

A Canadian medical expedition returned to Halifax on March 17, 1965 after a two month stay on Easter Island. This expedition was aided by grants from the World Health Organization, the Medical Research Council of Canada and the McConnell Foundation of Montreal. The Department of National Defence provided the Royal Canadian Navy's repair ship, HMCS Cape Scott, for transportation and construction of the biological station.

The objectives of the expedition included an integrated medical survey of the total native population to identify and evaluate the relative role of environmental and hereditary factors in an isolated population before the advance of modern civilization. This survey comprised ecological, sociological, dental, anthropological, genetic, microbiological and epidemiological factors.

The writer, a member of this scientific expedition, conducted a dental survey of this native population.

CLINICAL EXAMINATION

The dental survey was carried out on 236 Easter Island subjects as part of a general medical survey conducted between December 28, 1964 and February 10, 1965. Since the limited time did not

permit examination of the entire population, adults aged 18 and older were selected for this project. Each subject was examined with mouth mirror and explorer. Bitewing radiographs were taken where indicated. This amounted to a total of 650 films.

RESULTS

The examination data were transferred from CAFB 465 charts and radiographs to IBM punch cards which were processed by the Bureau of Dental Health, State of New York Health Department. Tables 1-7 outline the results of the analysis.

DISCUSSION

Calculations in the preceding tables were made on the basis of 28 teeth per subject. Third molars were excluded from the results because it was impossible to determine whether these teeth had been extracted, were impacted or had not developed.

Accidents contributed significantly to the large number of anterior teeth which were prematurely lost. Easter Islanders learn to ride horseback at a very early age; it was a common sight to see three children, four and five years of age, riding one horse at high speed. Facial scars and anterior spaces bore evidence of the number of falls from horseback during the lives of this population of riders.

Oral hygiene was extremely poor with over half of the subjects making no attempt whatsoever to clean the teeth. Toothbrushes were available from the supply ship which visited the Island once annually but were generally in short supply for the rest of the year. During the questionnaire part of the survey it was found that some families had only one brush which served every member of the family. When shown a brush and tube of tooth paste, many children could not identify these objects. When first questioned, some parents stated that their children cleaned their teeth every day with brush

TABLE 1 Population of Easter Island on February 10, 1965.

Age	Male	Female	Total	Per cent	% Canada (1961)
0-9	214	203	417	43.53	23.80
10-19	121	110	231	24.11	18.00
20-29	37	62	99	10.34	13.10
30-39	41	42	83	8.65	14.00
40-49	35	32	67	7.00	11.70
50-59	23	15	38	3.97	8.60
60-69	9	8	17	1.78	5.90
70-79	2	3	5	0.52	4.90 (70+)
80-89	0	1	1	0.10	
Total	482	476	958	100.00	100.00

TABLE 2 DMF teeth per 100 teeth.

Age	Total		Male		Female	
	No.	DMF	No.	DMF	No.	DMF
10-19*	25	56.71	12	50.00	13	62.91
20-29	65	61.53	24	48.21	41	69.33
30-39	56	57.27	31	50.34	25	66.71
40-49	40	62.41	23	50.31	17	78.78
50-59	35	70.51	18	57.73	17	84.24
60-69	12	79.76	9	84.92	3	64.28
70-79	3	84.52	0	0.00	3	84.52
Combined	236	62.72	117	53.56	119	71.57

*All 25 subjects in this age group were 18 or 19 years old.

TABLE 3 DMF teeth per subject.

Age	Total	Male	Female
10-19	15.88	14.00	17.61
20-29	17.23	13.50	19.41
30-39	16.03	14.09	18.44
40-49	17.47	14.08	22.05
50-59	19.50	16.16	23.25
60-69	22.33	23.77	18.00
70-79	23.66	0.00	23.66
Combined	17.57	15.00	20.09

TABLE 4 Percentage distribution of D, M and F teeth.

Age	Per cent		
	D	M	F
10-19	57.68	36.30	6.01
20-29	36.51	54.91	8.57
30-39	27.21	63.32	4.93
40-49	18.31	80.54	1.14
50-59	9.83	88.73	1.44
60-69	8.20	91.79	0.00
70-79	0.00	100.00	0.00
Combined	26.84	68.61	4.55

and paste. Later, many qualified this assertion by explaining that the children cleaned their teeth “every day when the materials were available.” Further questioning disclosed that the materials had not been available since the visit of the last supply ship 13 months previously.

Large amounts of calculus were seen in many mouths. Those classed as having heavy deposits had the gingival one-third to one-half of lingual surfaces of lower anterior teeth and buccal surfaces of upper molars covered with calculus. The amount of calculus seen combined with poor oral hygiene accounted for the large number of subjects who suffered with gingivitis. Marginal gingivitis was noted in 117 subjects (54.17 per cent). Despite the condition of these mouths not one case of Vincent’s infection was seen during the survey.

No malignant lesions, no deformities such as cleft lip or palate and no gross malocclusions were seen. The lack of tension in the lives of Easter Islanders accounted for the absence of ulcers and the low incidence of hypertension. For the same reason there was a low incidence of thumb sucking and lip biting among the children which may account to some degree for their freedom from orthodontic problems.

The absence of cusps of Carabelli was noted. Only a few subjects exhibited a faint line where the groove of Carabelli’s cusp is normally located.

Pericoronitis of lower third molars was not evident during treatment of patients

TABLE 5 Calculus deposits.

No.		Per cent
Heavy	138	58.47
Moderate	51	21.61
Light	21	8.90
Edentulous subjects	26	11.02
Total	236	100.00

TABLE 6 Oral hygiene.

Quality	No.	Per cent
Good	22	9.32
Fair	68	28.81
Poor	146	61.86
Total	236	100.00

TABLE 7 Prosthodontic requirements.

Denture	No.
Complete upper	66
Complete lower	50
Partial upper	86
Partial lower	70
All dentures	272
Per subject	1.15

or examination of subjects. Where oral hygiene is so poor one would expect to find this condition at least occasionally. Possibly the loss of so many lower teeth, as indicated in the tables, eliminated crowding sufficiently to facilitate complete eruption of lower third molars.

Although the subjects were from a young population as compared to Canada (Table 1), there was a large requirement for prosthetic appliances. Table 7 shows that 1.15 dentures were required per subject to satisfy the need. This situation developed as a result of insufficient restorative treatment as evidenced by the fact that there were only 1.4 restorations per subject while the average subject had 12.01 teeth missing.

A dietary survey was conducted in the homes of the Islanders. This revealed the general diet to be adequate. Therefore diet was not considered a causative factor for the high DMF rate in all age groups. Were it not for the fact that candy and soft drinks are normally unavailable on Easter Island the already high DMF rate would have been still higher.

The DMF index was generally higher for females than for males. DMF teeth per subject (Table 3) were 25 per cent higher in females. Women had a greater tendency to eat between meals during the preparation of food. In the presence of poor oral hygiene and a high incidence of chronic gingivitis, acute periodontic flare-ups would take some toll during pregnancy. Of the total of 37 completed dentures seen, 27 were worn by females. The number of sound teeth removed during preparation of the mouth to receive these dentures would add to the DMF score of the recipients. In other areas where better oral hygiene is practised and where more professional treatment is available the difference in DMF teeth between males and females would not be manifest to such a degree.

CONCLUSIONS

A high DMF score of 17.57 teeth per subject was found in 236 Easter Islanders aged 18-79. Decayed or missing teeth accounted for 95.45 per cent of the DMF index. The prime causative factor was determined to be poor oral hygiene. Moreover, the average subject had only 1.4 fillings and had lost 12.01 teeth. Thus, lack of restorative treatment was an important contributing factor.

During the survey 2,000 toothbrushes were distributed. The Islanders became more aware of the condition of their mouths. Some attention was drawn to the importance of good oral hygiene and the need for more treatment. Any beneficial effects brought about by the survey would be minimal and temporary. A sustained dental health program would have to be instituted to create a significant and lasting improvement in the dental health of the population of Easter Island.

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The foundations of North America were laid in 'Acadie' — the name given to the Nova Scotia region by the native Micmac Indians. Grand Pré, pictured here, is near Wolfville, and is the focal point of the expulsion of the Acadians in 1755. Why not visit Grand Pré before or after the CDA National Convention in Halifax in June?

Adjunctive use of tetracycline-novobiocin in endodontics

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The adjunctive systemic administration of 250 mg. of tetracycline-novobiocin four times daily following initial treatments reduced the duration of endodontic therapy in 25 patients. None of these patients experienced any acute inflammatory reaction during the course of therapy which was successfully concluded. Of a similar number of control subjects who received identical treatment but no antibiotic, two experienced a flare-up during treatment, three eventually required root resection and one decided to have the tooth extracted. Tetracycline-novobiocin displays bactericidal effectiveness against a wide range of gram positive and gram negative micro-organisms. These drugs are essentially non-allergenic, relatively non-toxic and exhibit few clinical side effects.

Grâce à l'emploi d'une médication systémique de tétracycline-novobiocin à raison de 250 mg. quatre fois par jour, il a été possible de réduire la durée du traitement d'endodontie dans 25 cas. Aucun de ces patients n'a eu à souffrir de réaction inflammatoire aiguë au cours du traitement qui a été mené à bien. Un groupe témoin, comprenant un nombre identique de patients, a reçu un traitement semblable, mais sans recevoir les antibiotiques. Parmi ces derniers, deux ont eu des infections aiguës, trois ont dû être traités par curetage apical, et un dernier patient a décidé de faire extraire sa dent. La tétracycline-novobiocin est efficace contre une grande variété de micro-organismes gram positif et gram négatif. Ces médicaments qui sont non-allergènes, et relativement peu toxiques, causent peu d'effets secondaires.

It is generally accepted that a set procedure should be followed in endodontic treatment. The canal or canals should be filed and widened. Local medications should be used to sterilize the canals.

Endodontic bacterial cultures are usually not subcultured or retained longer than 48 hours. Sterility is usually accepted after two cultures prove to be negative. This implies that the dentist does not know

what organisms are present, or to what drug the organisms are sensitive. Neither can he be certain whether a bacteriostatic or bactericidal state exists. If bacteriostasis exists, it is possible that the organism may revive after some length of time and the infection may be reactivated after the canals have been sealed and filled.

It is also accepted that the filling material, be it gutta percha or silver points, should neither be short of nor project beyond the apex of the tooth. In either case there is danger. If the filling material is short of the apex it is possible to expose the individual to an anachoretic state following a transient bacteraemia resulting from subsequent dental procedures.¹ On the other hand, overfilling of the canal may produce irritation from actual movement of the filling material as part of general tooth movement.

Drugs generally used for sterilizing canals, such as camphorated phenol (camphophenique), camphorated para-monochlorophenol, polypeptides and other antibiotics applied locally, will eventually achieve this objective. To accelerate this process and ensure successful treatment, we postulated that the adjunctive use of a systemically administered broad spectrum antibiotic would aid in controlling existing infection and possibly reduce the number of treatments, particularly in instances where there is a pre-existing peri-apical infection.² The infection would then be attacked from two directions: systemically to the apical area, and orally via the canal. Since most apical infections are due to a mixture of gram positive and gram negative micro-organisms, a broad spectrum antibiotic was obviously indicated. We therefore selected a combination of tetracycline and novobiocin (Albamycin T, Upjohn).

MATERIALS AND METHODS

One hundred patients with infected root canals were treated and observed in the McGill Dental Clinic of the Montreal General Hospital. Fifty of the patients were treated in the accepted manner. The remaining 50 were identically treated ex-

cept that, after the initial treatment and culture, 250 mg. of tetracycline-novobiocin were administered four times daily during the course of subsequent treatment. If the initial culture proved to be negative no antibiotic therapy was given and the patient was eliminated from this study.

A variety of teeth were treated in both groups. Initially, the patients' physical and oral histories were recorded. This was followed by full-mouth radiographs. Teeth destined for endodontic treatment were isolated with rubber dam. The pulp chamber was opened, the pulp extirpated and a culture obtained using a paper point to determine the organisms involved. Subjects of the experimental group then received the antibiotic. Apart from this, the usual therapeutic procedures were carried out.

The paper points were inoculated in thioglycollate broth and incubated at 37°C. for 10 days. If no growth occurred at the end of this period the cultures were considered sterile. When any evidence of growth occurred before this time the broth was plated on blood agar plates and the organisms identified by appropriate methods.

Antibiotic sensitivity tests were performed on all isolated strains using the paper disk method. Gram positive organisms were tested against penicillin, tetracycline, chloramphenicol, erythromycin, novobiocin, and the tetracycline-novobiocin combination. Gram negative organisms were tested against streptomycin, tetracycline, chloramphenicol, novobiocin, and again the tetracycline-novobiocin combination.

RESULTS

Lack of co-operation on the part of some patients resulted in some losses from this investigation. This is always to be expected when treating public patients who, in some cases, disappear as soon as they are made comfortable. Other patients neglected to take the drug for varying periods of time. Such cases are of no value when attempting to evaluate a therapeutic agent in clinical research.

Of the two original groups, 25 faithfully co-operative patients from each group were ultimately selected for final evaluation.

In the experimental group, 14 patients had anterior teeth treated and 11 patients had posterior teeth treated.

In the control group, 15 patients had anterior teeth treated and 10 patients posterior teeth, all with some periapical involvement.

Organisms isolated from the canals of the original 100 patients before treatment are listed in Table 1. When subsequent cultures were positive the same organism was isolated in all instances. Interestingly, the majority (34 per cent) were anaerobic streptococci.

Although all of the organisms isolated in this investigation are regarded as normal inhabitants of the mouth, the majority of strains belonged to the Streptococceae. Twenty per cent were streptococci of the viridans group, 22 per cent were enterococci and 34 per cent were anaerobic streptococci. Contrary to expectations, mixed cultures were not found. Since it could be assumed that bacterial contamination of the root canal occurs by direct extension from the oral cavity, it would not be considered unusual if more than one species of organism were isolated from the same location. This was not the case, however. The three cultures showing a pure growth of *C. albicans* were rather unusual but other investigators have made a similar observation.

Except for the two strains of *E. coli* and the three strains of *C. albicans*, the organisms isolated would not be expected to show any resistance to penicillin, erythromycin, or the broad spectrum antibiotics. However, sensitivity tests showed that antibiotic resistant strains did occur (Table 2). Although these represent only a small proportion of the total number of strains isolated, their presence emphasizes that blind antibiotic therapy for infections involving oral bacteria will not necessarily give a good result. This may be one of the reasons why the use of antibiotics in endodontics has not always met with complete success.

Table 3 illustrates the antibiotic sensitivity pattern of the *Str. faecalis* strains,

TABLE 1 Micro-organisms isolated from primary cultures from 100 patients.

Micro-organism	No. of strains
<i>Streptococcus salivarius</i>	16
<i>Streptococcus mitis</i>	7
<i>Streptococcus bovis</i>	2
<i>Streptococcus equinus</i>	1
<i>Streptococcus faecalis</i>	22
<i>Pepto-streptococcus evolutus</i>	31
<i>Pepto-streptococcus anaerobius</i>	3
<i>Fusobacterium fusiforme</i>	2
<i>Staphylococcus pyogenes</i>	1
<i>Micrococcus epidermidus</i>	9
<i>Neisseria flava</i>	1
<i>Escherichia coli</i>	2
<i>Candida albicans</i>	3

and Table 4 those belonging to the *Pep. evolutus* (microaerophilic streptococci) strains.

DISCUSSION

Results of the antibiotic sensitivity tests disclose that the majority of the resistant bacteria were enterococci. Of the 22 strains of *Str. faecalis* isolated, 54.5 per cent showed resistance to one or more antibiotics and 22.7 per cent were resistant to the tetracycline-novobiocin combination. The microaerophilic streptococci also exhibited some antibiotic resistance but not to the same degree. Of the 31 strains of *Pep. evolutus* isolated, 19.3 per cent were resistant to one or more antibiotics whereas only 10 per cent were resistant to the test combination.

It was unfortunate that resistant micro-organisms were not isolated from the root canals of the experimental patients. In retrospect, it is clear that it would have been wiser to select the patients to be

TABLE 2 Antibiotic sensitivity tests from 100 patients.

Antibiotic	Per cent resistant strains
Penicillin	8
Tetracycline	7
Chloramphenicol	9
Novobiocin	5
Erythromycin	7
Tetracycline-novobiocin	8

TABLE 3 Antibiotic sensitivity pattern of *Str. faecalis*.

Strain no.	Type of patient	Penicillin	Tetracycline	Chloramphenicol	Erythromycin	Novobiocin	Tetracycline-novobiocin combination
1	Control	S	S	R	S	S	S
2	Control	R	S	R	S	S	S
3	Control	S	R	S	R	S	R
4	Control	S	S	R	S	S	S
5	Control	R	R	R	R	R	R
6	Control	R	R	R	R	R	R
7	Control	R	R	S	R	S	R
8	Control	S	S	R	S	S	S
9	Treated	S	S	S	R	S	S
10	Treated	S	S	R	R	S	S
11	Treated	R	S	S	R	R	S
12	Treated	S	S	S	S	R	R
13-22	Treated and control	S	S	S	S	S	S

S=sensitive; R=resistant.

TABLE 4 Antibiotic sensitivity pattern of *Pep. evolutus*.

Strain no.	Type of patient	Penicillin	Tetracycline	Chloramphenicol	Erythromycin	Novobiocin	Tetracycline-novobiocin combination
1	Control	S	R	S	S	S	R
2	Control	S	R	R	S	S	R
3	Control	S	R	S	S	S	S
4	Control	S	S	S	S	S	R
5	Control	R	S	S	S	S	S
6	Control	S	S	R	S	S	S
7-31	Control and treated	S	S	S	S	S	S

S=sensitive; R=resistant.

treated with antibiotics on the basis of the organisms isolated from the cultures and sensitivity tests. However, in an outpatient clinic this it not practical and it is necessary to prescribe an antibiotic on the second visit after a positive culture has been confirmed.

For the 25 experimental subjects a total number of 76 appointments was necessary to acquire two negative cultures. The control patients, on the other hand, required 139 appointments to achieve the same result (Figure 1).

Treatment was satisfactorily completed for all members of the experimental group. Three patients of the control group eventually had root resection

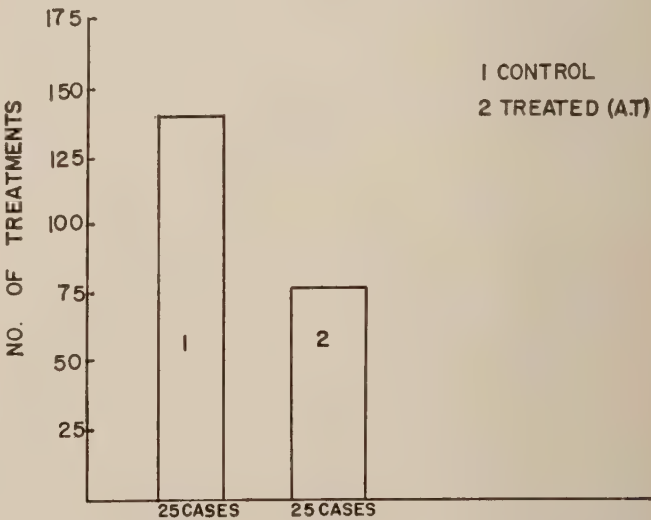


FIGURE 1 Endodontic appointments required by patients of the control and experimental (treated with tetracycline-novobiocin) groups.

and one decided to have the tooth removed. Experimental subjects experienced no flare-ups during the course of treatment whereas two control subjects had acute reactions.

We recognize the problems of evaluating a clinical research project. There are individual differences between patients. Some respond naturally to any kind of therapy while others are inclined to resist. Some are well nourished and generally healthy while others are not. Response to therapy will therefore vary.

Despite these problems we considered it worthwhile to compare the effects of combined systemic and local treatment with those of local treatment only. We also wanted to isolate the various types of organisms from infected canals and observe their sensitivity or resistance to various antibiotics.

Our results suggest that a broad spectrum antibiotic is indicated in certain cases. We do not propose that all patients destined to undergo endodontic treatment should routinely receive an antibiotic. But where there is radiographic evidence of a periapical abnormality, the systemic administration of an antibiotic may help to eradicate a possible pre-existing periapical infection and generally shorten the duration of treatment. So-called flare-ups, which did not occur in our experimental group, are of sufficient significance in routine conservative treatment to warrant concern.

Though the administration of broad spectrum drugs is moderately safe, one must be aware of possible side effects that may occur. As with any tetracycline there can be nausea, vomiting and later some diarrhoea. These symptoms occur more frequently than with other antibiotics. One must also be alert for monilia-like infections which may occur in the vagina as well as the oral cavity. Despite these mild side effects there is little or no evidence of true allergy or other more serious manifestations.

SUMMARY

In vitro tests have demonstrated the bactericidal effectiveness of a tetracycline-novobiocin combination against a wide range of gram positive and gram negative micro-organisms. This combination is as effective as any other antibiotic tested by these means. It has the advantage, moreover, of being essentially non-allergenic. The broad spectrum qualities of tetracycline-novobiocin are advantageous in view of the great variety of organisms found in the oral cavity. Tetracycline-novobiocin is also relatively non-toxic and demonstrates few clinical side effects. The adjunctive systemic administration of 250 mg. of tetracycline-novobiocin four times daily following initial treatment reduced the duration of endodontic therapy in 25 patients. Treatment was satisfactorily concluded for all members of the experimental group and none of them experienced any acute inflammatory reactions during the course of therapy. Of a similar number of control subjects who received identical treatment but no antibiotic, two experienced a flare-up during treatment, three eventually required root resection and one decided to have the tooth extracted. Thus tetracycline-novobiocin appears to reduce the number of endodontic sittings and the frequency of deleterious reactions. Though not recommended for routine use, it may have a useful role where radiographic evidence of periapical abnormality may be indicative of a possible pre-existing periapical infection.

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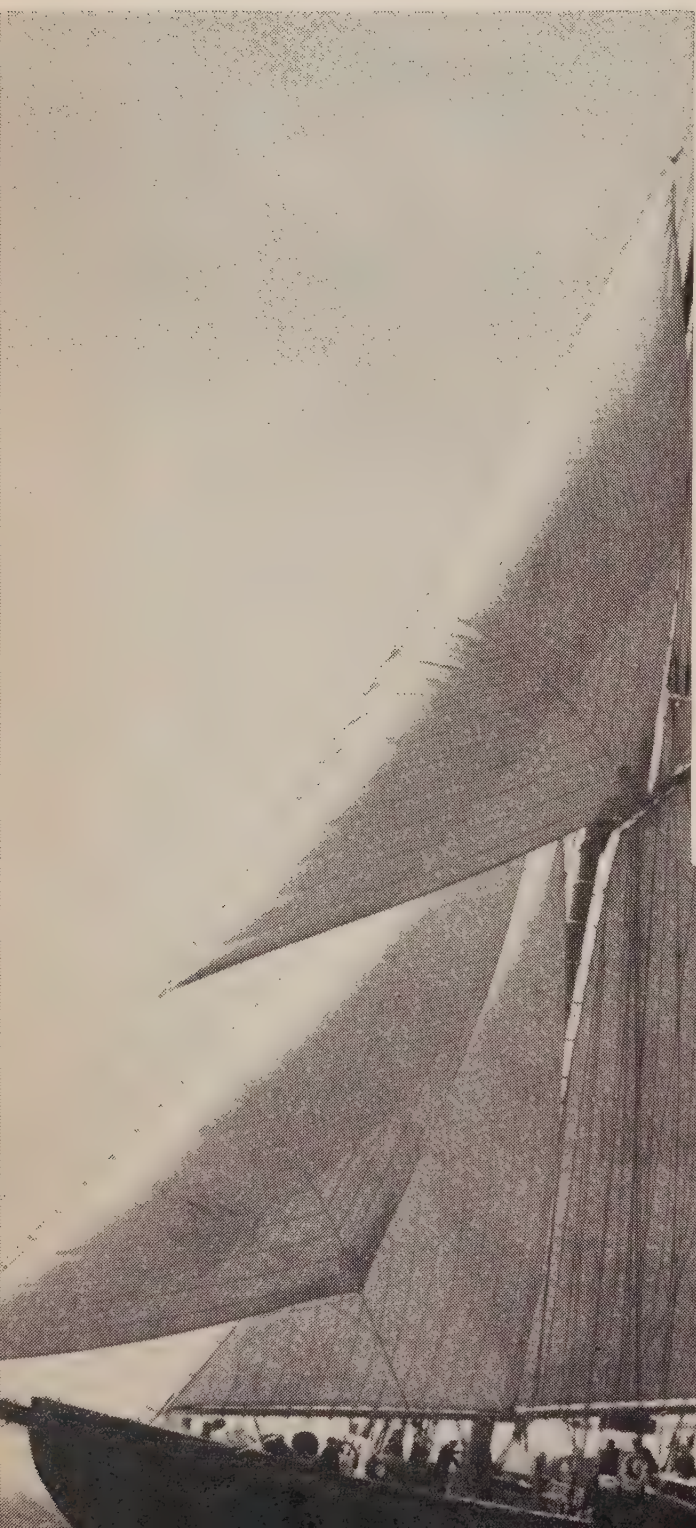
This study was supported by the Upjohn Co., Toronto.

1. Francis, L. E., de Vries, Joan A., Soomsawasdi, Punni and Platonow, Maria. Control of post-extraction bacteraemias. *J. Canad. D.A.* 28:683, 1962.
2. Thomas, A. E. Therapeutic management of endodontic infections. *D. Clin. N. America* p. 147, 1958.

Montreal General Hospital

special contributions
articles spéciaux

A wind that follows fast . . . and bends the gallant mast



She is a lithe and graceful two-masted schooner surging through Atlantic white caps under full sail . . . faster than any schooner has a right to go. Her sheered hull is painted black as night . . . her bowsprit points high and defiantly proud.

She is the dead-spit of the salt water sovereign that 30 years ago raced to head Canada's dying era of ocean-going sail. Her name is the same as her twin—lost in 1946 on a Caribbean reef. But she is no ghost.

She is *Bluenose II*.

She is lovely—and she's real.

Built off the same plans, in the same shipyards, by the same, now fast-vanishing skills as the original *Bluenose*, she sails down the shining wake left by her namesake in the pages of Maritime history and seagoing lore.

Bluenose II was commissioned by the Halifax firm of Oland and Son, Limited,

as a living tribute to Canada's greatest sea saga. The new schooner's keel was laid February 27, 1963, on the shores of the Atlantic fishing port of Lunenburg. In the next five months veteran shipwrights raised into position 63 frames fashioned of hard oak. As many as 17,000 tr'unnels (treenails) were used to secure steamed planking of birch and oak to the massive ribs below the waterline. Spruce formed the 'ceiling' or interior planking. Douglas fir, the top five 'strakes' of outside freeboard. Solid deck beams of spruce were then wedged into place and over these was laid a deck of heavy, clear pine.

Five months after the laying of the keel, July 24, the call to 'Wedge up!' rang out through the building shed. When the clang of 40 mallets had stopped, came the order to 'Knock down dogs!' Amid the din of more than 15,000 cheering spectators and a noisy cacophony of boat horns, the long, sweet-lined hull dipped into salt water for the first time.

Men who know say it's the rigging that gives a wind ship her life and beauty. "About the time the riggers take up on the lanyards and surge the backstays taut" it is said, "the vessel takes to tug-gin' at her moorin's and sniffin' the wind." And so it was that as the two towering spars of Douglas fir were stepped and capped with topmasts, *Bluenose II* developed the familiar, compelling profile of the swift Lunenburg saltbanker that more than 40 years before had raced her way into a nation's affections.

Veteran seamen agree that she is an incredibly precise copy of the old *Bluenose*. But *Bluenose II* was designed to be a nautical paradox; below decks, out of sight of her fisherman's lines and rig, she has saloon and cabins that would make

any old-time schooner—used to the horny comforts of a fo'c'sle forward of the fish holds—gaze awestruck in unbelief. Guest cabins are panelled in dark-grained walnut, and her cushioned, television-equipped saloon would grace a royal yacht.

Once rigged and ready, she was given an early test of her seaworthiness. On her maiden voyage to the Pacific island of Cocos in search of treasure, she sailed through a hurricane, torn by mauling seas and pummeled by 100 mph winds. But she emerged unscathed and unbeaten, and won the praises of aging Captain Angus Walters, skipper of the original *Bluenose*, who was aboard for the trip.

Pampered lady though she is, *Bluenose II* must try to earn her keep. During the winter months, she plies the Caribbean as a charter ship bent to the command of sun-seeking vacationers. Summers are spent in home waters off Canada's Atlantic Provinces. Frequently, she lies tied to her Halifax berth for the benefit of touring visitors who are welcomed aboard to feel the hardy touch of her wooden decks. At other times, she clears harbour to cruise for several days up and down the coast. Frequently—as during this year's CDA national convention—she will carry charter parties to sea on a half-day's sail. Often she makes a scheduled visit to one or more Maritime ports to be seen and sampled as a unique memento of Nova Scotia's proud days of sail and world-famed seamanship.

No, *Bluenose II* is no spectre ship—no figment of an old salt's imagination. She's far more than that—she's a living, breathing, pulsating page, straight out of Canada's Maritime history, with a story to tell and a thrill to bestow! Visit her when you attend the National Convention in Halifax June 12-15.

1963 Survey of Dental Practice

6. Auxiliary personnel

Bureau of Economic Research

The 1963 Survey of Dental Practice gathered information on dental hygienists, dental laboratory technicians, dental assistants or nurses, secretary-receptionists and other persons employed in private dental practices. Employees were separated into two groups: (1) those occupying full-time positions all year; (2) those in part-time positions or in positions which were occupied only part of 1963.

PER CENT OF DENTISTS WHO EMPLOY AUXILIARIES

Only 4 per cent of Canada's practising dentists employed a dental hygienist in 1963. Three per cent had part-time hygienists and 1 per cent had full-time hygienists. Six per cent of the dentists employed technicians—3 per cent employing technicians part-time and 3 per cent employing technicians full-time.

All except 13 per cent of the practitioners employed dental assistants. Seven per

Enquête de 1963 sur la profession dentaire

6. Auxiliaires

Bureau des recherches économiques

Ce chapitre de l'enquête de 1963 sur la profession dentaire porte sur les hygiénistes, techniciens, assistantes ou infirmières dentaires, secrétaires réceptionnistes et autres personnes à l'emploi d'un praticien. Ces employés ont été divisés en deux groupes: (1) ceux qui occupaient un emploi à plein temps; (2) ceux qui travaillaient à temps partiel ou qui n'ont pas travaillé pendant toute l'année 1963.

COMBIEN DE DENTISTES ONT DES EMPLOYÉS?

Les chiffres de 1963 indiquent que seulement 4 pour cent des dentistes canadiens emploient une hygiéniste dentaire; 3 pour cent l'emploient à temps partiel et 1 pour cent à plein temps. Six pour cent des dentistes emploient des techniciens — 3 pour cent d'entre eux à temps partiel et 3 pour cent à temps complet.

Treize pour cent seulement des praticiens n'emploient pas d'assistante den-

cent employed a part-time assistant only, 70 per cent employed one full-time assistant, 9 per cent employed two and 1 per cent employed more than two full-time assistants.

TABLE 1 How many dentists employ auxiliaries?

8 % employ	None
8 % employ	Only part-time help
61 % employ	1 Dental assistant
7 % employ	2+ Dental assistants
6 % employ	1 Dental assistant and one secretary
3 % employ	1 Secretary
7 % employ	Other combinations

Secretary-receptionists were employed by fewer dentists than were dental assistants. An employee who acted as a secretary or receptionist but also provided some chairside assistance was included in the dental assistants' category. Full-time secretary-receptionists were employed by 12 per cent of the dentists and part-time secretary-receptionists by 9 per cent.

MOST COMMON COMBINATIONS OF AUXILIARIES EMPLOYED

Sixty-one per cent of all dentists employed one full-time dental assistant and no other full-time auxiliaries. Eight per cent had no employees at all, and 8 per cent had only part-time employees. The remaining 23 per cent hired various combinations of personnel. Seven per cent had two or more assistants while 6 per cent had one dental assistant and one secretary. Three per cent had only a secretary and 2 per cent had one technician and either a secretary or a dental assistant. The other 5 per cent employed 30 different combinations of personnel.

One-third of the dentists practising in Quebec reported that they employed no full-time personnel while only 15 per cent of Ontario's dentists made the same statement. The four western provinces all had even smaller percentages of dentists with

TABLEAU 1 Combien de dentistes ont des employés?

8 % sont	sans employé
8 % emploient	seulement du personnel à temps partiel
61 % emploient	1 assistante dentaire
7 % emploient	2 assistantes dentaires ou plus
6 % emploient	1 assistante dentaire et 1 secrétaire
3 % emploient	1 secrétaire
7 % emploient	d'autres combinaisons

taire, 7 pour cent ont une assistante à temps partiel et 70 pour cent à temps complet. Neuf pour cent emploient deux assistantes à temps complet et 1 pour cent plus de deux.

Les secrétaires réceptionnistes sont moins nombreuses que les assistantes. Celles qui remplissaient en plus quelques fonctions d'assistante ont été classées dans la même catégorie que les assistantes. Douze pour cent des dentistes emploient des secrétaires réceptionnistes à plein temps et 9 pour cent en emploient à temps partiel.

LES COMBINAISONS D'EMPLOYÉS LES PLUS FRÉQUENTES

Soixante et un pour cent des dentistes emploient à temps complet une assistante seulement, 8 pour cent n'ont aucun employé, et 8 pour cent n'ont des employés qu'à temps partiel. Les 23 pour cent restant utilisent diverses combinaisons de personnel réparties ainsi: 7 pour cent ont deux assistantes ou plus, 6 pour cent ont une assistante et une secrétaire, 3 pour cent ont une secrétaire seulement et 2 pour cent ont un technicien et une secrétaire ou une assistante. Les derniers 5 pour cent utilisent 30 combinaisons différentes.

Un tiers des dentistes du Québec déclarent qu'ils n'emploient pas de personnel à temps plein, contre 15 pour cent des dentistes de l'Ontario. Les quatre provinces de l'Ouest ont toutes un pourcentage encore plus bas de dentistes sans

no employees — from 5 to 11 per cent. Prince Edward Island had the largest percentage of dentists practising with no full-time employees in 1963. This may explain the low ratio of expenses to gross income reported by dentists of that province. Forty-four per cent of the Island's dentists reported that they had no full-time employees; the remaining 56 per cent said they employed one dental assistant. All Newfoundland dentists who replied to the survey questionnaire said they employed at least one full-time auxiliary. Two-thirds of these respondents employed one dental assistant and one-third employed a technician as well as a secretary or assistant.

Over two-thirds of the dental practitioners in the other two Atlantic provinces, Nova Scotia and New Brunswick, employed either one dental assistant or one secretary. Combinations of personnel employed in the other provinces were more varied. After Newfoundland, Quebec had the highest proportion of dentists employing technicians either alone or with an assistant and/or secretary. Seventy-six per cent of Manitoba's dentists employed a dental assistant or secretary while another 12 per cent employed either an assistant and a secretary or two or more dental assistants. Saskatchewan, Alberta and British Columbia all reported that over 20 per cent of their dentists employed either one dental assistant and one secretary-receptionist or two dental assistants.

The proportion of dentists with no employees has decreased from 19 per cent in 1953 to 13 per cent in 1958, to 8 per cent in 1963. In the same period, the percentage employing one dental assistant has risen from 48 to 61 per cent and the percentage employing one assistant and one secretary has increased from 2 to 6 per cent.

Each province reported an increase in the percentage of its dentists employing one dental assistant. All provinces except New Brunswick, however, reported fewer dentists employing one secretary than in 1953 or 1958. This may be because the 1953 and 1958 survey questionnaires did not define dental assistants and secretaries, so that there may have been some overlapping between these two categories.

employés — soit 5 à 11 pour cent. Le plus haut pourcentage de dentistes sans employés à temps plein en 1963 revient à l'Île du Prince-Édouard, ce qui explique peut-être la faible proportion de frais professionnels dans le revenu brut pour cette province. Quarante-quatre pour cent des dentistes de l'Île du Prince-Édouard déclarent qu'ils n'ont pas d'employés à temps complet; les autres 56 pour cent déclarent employer une assistante dentaire. Tous les dentistes de Terre-Neuve qui ont répondu à l'enquête déclarent qu'ils emploient au moins une personne à plein temps. Deux tiers d'entre eux emploient une assistante, et l'autre tiers un technicien plus une assistante ou une secrétaire.

Plus de deux tiers des praticiens dentistes des deux autres provinces de l'Atlantique, la Nouvelle-Écosse et le Nouveau-Brunswick, emploient soit une assistante, soit une secrétaire. Les combinaisons de personnel sont plus variées dans les autres provinces. Après Terre-Neuve, le Québec a la plus haute proportion de dentistes employant des techniciens seuls, ou avec une assistante et/ou une secrétaire. Dans le Manitoba, 76 pour cent des dentistes emploient une assistante dentaire ou une secrétaire, auxquels s'ajoutent 12 pour cent de dentistes employant soit une assistante et une secrétaire, soit deux assistantes ou plus. Dans la Saskatchewan, l'Alberta et la Colombie britannique, plus de 20 pour cent des dentistes emploient ou bien une assistante dentaire et une secrétaire réceptionniste, ou bien deux assistantes.

La proportion de dentistes sans employés a diminué successivement de 19 pour cent en 1953 à 13 pour cent en 1958 et à 8 pour cent en 1963. Au cours de la même période, le pourcentage de ceux qui emploient une assistante est passé de 48 à 61 pour cent, et le pourcentage de ceux qui emploient une assistante et une secrétaire a augmenté de 2 à 6 pour cent.

Chaque province rapporte une augmentation du pourcentage de dentistes employant une assistante dentaire. Cependant, pour toutes les provinces, à l'exception du Nouveau-Brunswick, le nombre des dentistes employant une secrétaire était plus élevé en 1953 ou en 1958. La

FEW DENTISTS EMPLOY HYGIENISTS

According to the survey returns, no dentist in the Atlantic provinces employed a dental hygienist on a full-time basis. Eight per cent of the Nova Scotia dentists reported that they employed hygienists part-time in their practices. Only one-half of 1 per cent of Quebec's dentists employed hygienists while 1 per cent of dentists in the Prairie provinces employed full-time hygienists and 2 per cent had part-time hygienists. In comparison with their Prairie confrères, British Columbia dentists employed slightly less full-time hygienists but twice as many part-time ones. Ontario had the highest percentage as well as the highest number of dentists employing full-time dental hygienists — 2 per cent.

In all city sizes, the percentage of dentists employing hygienists part-time was greater than the percentage employing hygienists full-time. Higher percentages of dentists in cities of 50,000 and over population employed dental hygienists than did dentists in smaller centres, but the percentages never exceeded 5 per cent of the practising dentists. This is not surprising because, at the end of 1963, there were only 165 hygienists practising in the whole of Canada.

When dentists were divided into age groups, it was evident that the highest percentages of dentists employing dental hygienists part-time occurred in the age groups from 25 to 44 years. Between 3 and 4 per cent of these dentists employed part-time hygienists. On the other hand, the highest percentage of dentists employing full-time hygienists occurred among dentists between 45 and 54 years.

Dental hygienists were employed by more dentists in partnerships than by dentists who shared costs; but more cost-sharing dentists than dentists in solo practice employed hygienists. Eleven per cent of dentists in partnerships reported that they had dental hygienists in part-time employment.

The employment of dental hygienists was at a higher rate among orthodontists and periodontists than among dentists in general practice. One-quarter of the periodontists employed full-time dental hygienists.

raison en est peut-être que les questionnaires des enquêtes de 1953 et 1958 différenciaient mal l'assistante dentaire et la secrétaire, de sorte que les deux catégories ont peut-être été confondues.

PEU DE DENTISTES EMPLOIENT DES HYGIÉNISTES

D'après les réponses à l'enquête, aucun dentiste des provinces de l'Atlantique n'emploie d'hygiéniste dentaire à temps complet. En Nouvelle-Ecosse 8 pour cent des dentistes déclarent employer une hygiéniste à temps partiel dans leur cabinet. Seulement 0.5 pour cent des dentistes du Québec emploient une hygiéniste, tandis que dans les provinces des Prairies 1 pour cent des dentistes emploient une hygiéniste à plein temps et 2 pour cent des hygiénistes à temps partiel. En comparaison, les dentistes de Colombie britannique emploient un peu moins d'hygiénistes à plein temps que leurs confrères des Prairies, mais deux fois plus d'hygiénistes à temps partiel. L'Ontario possède le plus fort pourcentage et le chiffre le plus haut de dentistes employant des hygiénistes à plein temps, avec 2 pour cent.

Dans toutes les catégories de villes, le pourcentage de dentistes employant une hygiéniste à temps partiel dépasse celui des dentistes employant des hygiénistes à temps plein. Le pourcentage de dentistes employant une hygiéniste est plus fort dans les villes de 50,000 habitants et plus, que dans les petites localités, mais la proportion ne dépasse jamais 5 pour cent du total, ce qui n'étonnera personne, puisqu'à la fin de 1963 le Canada entier ne comptait que 165 hygiénistes.

En divisant les dentistes par groupes d'âge, on voit nettement que les plus forts pourcentages de dentistes employant des hygiénistes à temps partiel se situent dans les groupes d'âge de 25 à 44 ans. Entre 3 et 4 pour cent de ces dentistes emploient une hygiéniste à temps partiel. D'autre part, le plus haut pourcentage de dentistes employant une hygiéniste à plein temps se situe chez les dentistes âgés de 45 à 54 ans.

Les dentistes qui travaillent en association vraie emploient plus d'hygiénistes que les dentistes qui partagent leurs frais;

MORE TECHNICIANS EMPLOYED IN EASTERN REGIONS

The provinces with the highest percentages of dentists employing full-time dental technicians were Newfoundland and Quebec.

When dentists in cities of different sizes or in different age groups or graduating years were compared there were no significant differences in the percentages employing technicians. About twice as many dentists in cost-sharing practices as dentists practising alone employed technicians and between four and five times as many dentists in partnerships as dentists in solo practice employed technicians.

Seventeen per cent of the orthodontists reported employing full-time technicians while 30 per cent had technicians on their part-time staff. Comparable percentages for the general practitioners were only 3 and 2 per cent.

95 PER CENT BC DENTISTS EMPLOY DENTAL ASSISTANTS

Prince Edward Island and New Brunswick had the lowest percentages of dentists employing full-time dental assistants—56 and 60 per cent respectively. In British Columbia and the Prairie provinces, on the other hand, 95 per cent and 90 per cent respectively of the dentists employed full-time assistants.

The percentage for Ontario, 82 per cent, was close to the national average.

In general, the percentage of dentists employing full-time dental assistants rose gradually with the size of city in which the dentist practised. Less than two-thirds of dentists in communities of under 2,500 people employed full-time assistants while over 70 per cent in larger communities did so. The highest of all percentages according to city size was reported from cities of 250,000 to 500,000. Over 90 per cent of dentists in cities of this size employed full-time assistants. For larger cities, the percentage was only 76 per cent.

A higher percentage of dental assistants employed full-time was reported by middle-aged dentists than by dentists in other age groups. At ages 25 to 29, 72 per

mais les dentistes qui partagent leurs frais en emploient plus que les dentistes exerçant seuls. Onze pour cent des dentistes associés déclarent employer des hygiénistes à temps partiel.

Les orthodontistes et les périodontistes emploient beaucoup plus d'hygiénistes que les omnipraticiens. Le quart des périodontistes emploient des hygiénistes à temps plein.

PLUS DE TECHNICIENS DANS LES RÉGIONS DE L'EST

Québec et Terre-Neuve sont les provinces ayant les plus hauts pourcentages de dentistes qui emploient des techniciens dentaires à plein temps.

On ne découvre aucune différence importante en comparant les pourcentages de dentistes qui emploient des techniciens, par catégorie de ville, par groupe d'âge ou par année de graduation. Les dentistes qui exercent dans un cabinet à frais partagés sont deux fois plus nombreux à employer des techniciens que les dentistes exerçant seuls, et les dentistes en association sont quatre à cinq fois plus nombreux à employer des techniciens que ceux qui exercent seuls.

Dix-sept orthodontistes sur cent emploient des techniciens à temps complet et 30 sur cent en ont dans leur personnel à temps partiel. Les chiffres correspondants ne sont que de 3 et 2 pour cent chez les praticiens généraux.

EN COLOMBIE BRITANNIQUE 95 POUR CENT DES DENTISTES EMPLOIENT DES ASSISTANTES DENTAIRES

L'Ile du Prince-Edouard et le Nouveau-Brunswick ont les plus bas pourcentages de dentistes employant des assistantes dentaires à plein temps, avec respectivement 56 et 60 pour cent. La Colombie britannique et les provinces des Prairies atteignent d'autre part 95 et 90 pour cent respectivement.

L'Ontario, avec un pourcentage de 82 pour cent est très proche de la moyenne nationale.

En général, le pourcentage de dentistes

cent of the dentists employed assistants full-time. This percentage rose to 86 per cent for dentists between 45 and 49 years. For dentists of 65 and more years, it decreased to 60 per cent.

Fewer dentists in partnerships than in solo and cost-sharing practices had dental assistants on their full-time staffs. A higher percentage of them, however, employed part-time assistants. More dentists practising in cost-sharing arrangements rather than alone employed dental assistants.

Over 90 per cent of the dental specialists employed full-time dental assistants whereas less than 80 per cent of the general practitioners did so.

DENTISTS IN SPECIALTIES AND PARTNERSHIPS EMPLOY MORE SECRETARIES

There was little regional difference in the percentage of dentists hiring full-time secretary-receptionists. The percentages varied from 10 per cent in the Atlantic region to 13 per cent in Ontario. Neither were there significant patterns in the percentages of dentists employing full-time secretaries when dentists were grouped according to size of city of residence, age or year of graduation.

The percentage of dentists in partnerships employing secretary-receptionists was twice as great as the percentage of secretary-employing dentists in cost-sharing arrangements. However, more cost-sharing dentists than solo practitioners employed secretaries. Specialists showed a greater propensity to employ secretaries than did general practitioners.

AVERAGE SALARIES OF FULL-TIME AUXILIARIES

The average dental hygienist working full-time for a dentist in private practice earned \$3,977 in 1963. One-half of these dental hygienists earned over \$3,750. The distribution of the hygienists by the amount of their salaries should be viewed with some degree of caution. So few dentists employed hygienists on a full-time employant des assistantes à plein temps

croît avec l'importance de la ville où ils exercent. Dans les localités de moins de 2,500 habitants, moins des deux tiers des dentistes emploient des assistantes à plein temps, alors que dans les villes plus grandes leur nombre dépasse 70 pour cent. Les plus hauts pourcentages par rapport à l'importance des villes se situent dans les villes de 250,000 à 500,000 habitants, où plus de 90 pour cent des dentistes emploient des assistantes à plein temps. Dans les plus grandes villes, le pourcentage retombe à 76 pour cent.

Les dentistes d'âge moyen sont plus nombreux à employer des assistantes à plein temps que ceux des autres groupes d'âge. Le pourcentage est de 72 pour cent pour les dentistes âgés de 25 à 29 ans, il s'élève à 86 pour cent pour ceux de 45 à 49 ans et retombe à 60 pour cent pour les dentistes de 65 ans et plus.

Les dentistes associés sont moins nombreux à employer des assistantes à plein temps que leurs confrères qui exercent seuls ou en partageant leurs frais. Ils sont par contre plus nombreux à employer des assistantes à temps partiel. Les dentistes qui exercent à frais partagés sont plus nombreux à employer des assistantes que ceux qui exercent seuls.

Plus de 90 pour cent des spécialistes, contre moins de 80 pour cent des omnipraticiens emploient des assistantes à plein temps.

LES SPÉCIALISTES ET LES DENTISTES ASSOCIÉS EMPLOIENT PLUS DE SECRÉTAIRES

Le pourcentage de dentistes qui engagent des secrétaires réceptionnistes à temps complet varie peu suivant les régions. Il va de 10 pour cent pour les régions de l'Atlantique à 13 pour cent pour l'Ontario. L'importance des villes, l'âge et l'année de graduation n'ont également aucune incidence marquée sur les pourcentages de dentistes qui emploient des secrétaires à plein temps.

Le pourcentage de ceux qui emploient des secrétaires réceptionnistes est deux fois plus haut chez les dentistes associés que chez les dentistes qui partagent leurs frais, mais il est plus élevé chez les dentistes qui partagent leurs frais que chez

basis that the sample was of necessity very small.

The mean average income of dental technicians working in a private dental office was \$3,933 while the median salary was \$4,050.

TABLE 2 Median salaries earned by auxiliaries •
Salaires médians des employés.

Hygienists	\$3,750	Hygiénistes
Technicians	4,050	Techniciens
Assistants	2,551	Assistantes
Secretaries	2,301	Secrétaires

Dental assistants earned considerably less than either hygienists or technicians. Their mean and median average salaries were both just over \$2,500 and only 3 per cent of them made over \$4,000.

Secretaries and receptionists received the lowest salaries of the four types of auxiliaries studied. Their mean average income was \$2,201 while their median salary was \$100 higher.

This report is condensed from the *Survey of Dental Practice, 1963* published by the Bureau of Economic Research.

Ce communiqué est un résumé de l'Enquête de 1963 sur la profession dentaire, publiée par le Bureau des recherches économiques.

les dentistes qui exercent seuls. La tendance à employer des secrétaires est plus forte chez les spécialistes que chez les praticiens généraux.

LES SALAIRES MOYENS DES
EMPLOYÉS A PLEIN TEMPS

Les chiffres de 1963 indiquent que l'hygiéniste dentaire moyenne, travaillant à plein temps pour un dentiste en exercice privé gagne \$3,977. La moitié de ces hygiénistes gagnent plus de \$3,750. Cette répartition des hygiénistes d'après le montant de leur salaire est sujette à caution. Les dentistes qui emploient des hygiénistes à plein temps sont si rares que les calculs ont dû être faits à partir d'exemples peu nombreux.

Le salaire moyen des techniciens dentaires travaillant dans un cabinet privé est de \$3,933, alors que leur salaire médian est de \$4,050.

Les assistantes dentaires gagnent beaucoup moins que les hygiénistes et les techniciens. Leurs salaires moyen et médian dépassent à peine \$2,500, et seulement 3 pour cent d'entre elles reçoivent plus de \$4,000.

Les secrétaires et réceptionnistes forment la catégorie du personnel étudié dont les salaires sont les plus bas. Leur revenu moyen est de \$2,201, et leur salaire médian de \$2,301.



Cette tour Memorial est un point de repère important près de Halifax, où aura lieu le congrès de l'ADC en juin prochain. Située sur la côte nord-ouest, la tour a été construite en 1908 pour commémorer les débuts du gouvernement parlementaire au Canada en 1758, année des premières élections générales en Nouvelle-Ecosse — premier pas vers un gouvernement indépendant dans les colonies britanniques. Le terrain sur lequel la tour a été construite a été donné par Sir Sandford Fleming, l'inventeur de l'heure normale.

Rapport annuel de la Ligue d'hygiène dentaire de la province de Québec

Ephrem Vinet, DDS, Montréal, P. Qué.*

La Ligue d'hygiène dentaire de la province de Québec a l'honneur de soumettre le rapport de ses activités, dans lequel elle expose les grandes lignes du travail accompli au cours de la période qui va du 1 avril 1964 au 31 mars 1965. Grâce au travail de tous ses membres, la Ligue s'est efforcée de couvrir le mieux possible le champ de l'hygiène dentaire publique. Elle croit y avoir réussi.

La Ligue a utilisé, pour éduquer le public en hygiène dentaire, tous les moyens de communication disponibles: radio, télévision, journaux, projections cinématographiques, cours, conférences, causeries, contacts personnels.

Partout où elle a jugé pouvoir servir la cause de l'hygiène dentaire et la profession dentaire, la Ligue est allée de l'avant.

Lors de l'assemblée annuelle de la Ligue, les représentants du Collège des chirurgiens dentistes de la province de Québec ont exprimé leur entière satisfaction du travail accompli par la Ligue.

Cours et conférences. — Les cours et conférences ont été donnés à ceux qui peuvent le plus en profiter et sont ou seront en mesure de retransmettre à d'autres l'enseignement reçu: Ecole d'hygiène et Faculté de chirurgie dentaire de l'Université de Montréal, écoles d'infirmières, écoles normales, scolasticats, instituts

familiaux, écoles d'enseignement supérieur.

Du 1 avril 1964 au 1 juin 1964, la Ligue a donné des conférences dans 13 écoles de Montréal, devant 3,927 élèves, en collaboration avec le Service de Santé de la Cité de Montréal.

Nombre de cours donnés: 431.

Autres conférences. — Des conférences furent également données à divers groupes: associations parents-maîtres, clubs sociaux (Richelieu, Lions, Optimistes, Kiwanis, Rotary), conseils municipaux, commissions scolaires, associations de citoyens, association de Producteurs de lait, associations et sociétés médicales, dentaires, paramédicales.

Nombre d'associations, groupements: 143. Nombre d'auditeurs: 6,427. Nombre d'écoles où des cours furent donnés: 53.

Radio et télévision. — Causeries, conférences, interviews, forums, à la radio et à la télévision: 2,119 (télévision: 4). Nombre de postes qui ont prêté leur concours: 36.

Journaux et revues. — La Ligue a envoyé, chaque semaine, un communiqué aux journaux quotidiens et hebdomadaires de la province. La majorité des 94 hebdomadaires auxquels la Ligue a envoyé des communiqués les ont publiés régulièrement.

Parmi les quotidiens, *Le Soleil* (Québec), *Le Nouvelliste* (Trois-Rivières), sont les plus assidus. *La Presse* (Montréal) publie chaque semaine un article sur l'hygiène dentaire, sous le titre "Vos Dents . . . Image de votre Santé." Les articles ont été rédigés par les dentistes-hygiénistes de la Ligue.

De plus, les spécialistes de la Ligue, dans leurs régions respectives, ont rédigé et fait publier, dans les journaux et revues, de nombreux articles sur l'hygiène dentaire et sur la fluoration. Nombre d'articles: 786.

Littérature distribuée—Résumés de cours, distribués aux éducateurs et futurs éducateurs, pour leur faciliter l'enseignement de l'hygiène dentaire: (Nombre) 1,810.

Littérature variée: fascicules, dépliants, manuels, distribués à la suite de cours, conférences, entrevues, sur demande du public ou de la profession dentaire. (Nombre) 36,621.

Les imprimés étaient des publications soit de la Ligue, soit du Ministère de la santé, de la Ligue canadienne de santé ou de l'Association dentaire canadienne.

Aux services de santé, aux journalistes, aux commentateurs de radio et de télévision, ainsi qu'aux autres personnes qui en ont fait la demande, la Ligue a fourni une abondante documentation sur la fluoration.

Correspondance éducative. — La Ligue reçoit une moyenne de 50 lettres par semaine, contenant des demandes de documentation sur l'hygiène dentaire. Lettres reçues au cours de l'année: 2,492.

Les lettres reçues à 'La Clinique Dentaire' du poste de radio CKAC, à Montréal, ont aidé le représentant de la Ligue chargé de cette émission à maintenir l'intérêt du public envers ce programme. (Ce programme a pris fin à l'automne de 1964.)

Entrevues. — Dans le but d'organiser leurs cours, conférences, surveys et autres activités, les dentistes-hygiénistes ont eu des entrevues, établi des contacts, avec des dirigeants et des membres du personnel enseignant, des conseillers municipaux, des officiers de clubs sociaux, des journalistes, des gens de la radio et de

la télévision, etc. Ils ont aussi visité la plupart des dentistes de leur territoire respectif, soit pour leur offrir leur collaboration ou solliciter la leur. Nombre d'entrevues: 2,044. Nombre de municipalités: 102 (moyenne de 20 municipalités par hygiéniste). Milles parcourus: 84,003 (moyenne de 280 milles par jour ouvrable).

Autres activités. — En plus de leurs cours, conférences, entrevues, les dentistes-hygiénistes ont consacré une bonne partie de leur temps à d'autres activités, directement ou indirectement liées à leur travail d'hygiène dentaire publique.

Collaboration avec la profession dentaire, dans le cadre des associations et sociétés dentaires: la plupart des dentistes-hygiénistes de la Ligue occupent des postes dans les sociétés dentaires locales et régionales, à la demande expresse des confrères. D'autres sont des plus actifs dans l'Association dentaire du Québec.

De plus, avec la permission des autorités de la Ligue, les dentistes-hygiénistes consacrent du temps, souvent par les soirs et les jours de congé, au service d'une organisation de santé reconnue: Ligue canadienne de santé, Société canadienne du cancer, Services d'urgence de la défense civile, etc. Leur travail et leur dévouement sont des plus appréciés par les agences volontaires, bénévoles et privées.

La préparation d'articles pour les journaux, revues, radio, etc. exige beaucoup de temps.

Au niveau de l'enseignement universitaire, l'Ecole d'Hygiène et la Faculté de chirurgie dentaire ont de nouveau confié à des dentistes-hygiénistes de la Ligue la direction des cours d'hygiène dentaire et d'hygiène dentaire publique. Ce fut d'abord le Dr Paul Simard, auquel le Dr Amherst Hébert a succédé.

Collaboration avec la profession dentaire. — Pour que l'enseignement de l'hygiène dentaire soit efficace et fructueux, il faut une entière compréhension entre les éducateurs en hygiène dentaire et la profession qui applique les principes enseignés à la population. Dans ce but, la Ligue a continué et augmenté sa collaboration avec la profession dentaire, en aidant les

associations dentaires, les dentistes praticiens, le Collège, à mieux connaître la situation dentaire dans la province et amener plus de coopération entre les confrères. A ces fins, des représentants de la Ligue ont participé aux activités des sociétés dentaires de la province de Québec.

Associations dentaires. — Des membres de la Ligue sont particulièrement actifs dans l'Association dentaire du Québec. Un de ces membres remplit à cette Association la fonction de secrétaire-trésorier et de rédacteur du Bulletin de l'association. D'autres membres sont secrétaires de sociétés dentaires locales et régionales, directeurs ou délégués à l'ADQ, présidents ou membres de comités à l'ADQ. Un membre fait partie du Conseil d'Hygiène publique de l'Association dentaire canadienne. Dans l'accomplissement de ces diverses fonctions, souvent onéreuses, les représentants de la Ligue ont cherché à servir le mieux possible les intérêts de la profession dentaire.

Plusieurs sociétés dentaires ont utilisé les services du personnel de la Ligue, ainsi que le matériel: films, projecteurs, diapositives, documentation, etc. (Association dentaire de la Rive-Sud, Société dentaire de Saint-Hyacinthe, Société dentaire du Nord-Ouest du Québec, Société dentaire des Cantons de l'Est, et autres).

Services et santé et commissions scolaires. — La Ligue a collaboré avec les médecins-hygiénistes et les nutritionnistes du Service de santé de la Ville de Montréal, dans 13 écoles où eurent lieu des séances d'hygiène alimentaire et d'hygiène dentaire. Après les conférences, on projetait le film "Gardons nos Dents."

Faute de temps et manque de personnel, la Ligue a dû renoncer à ces séances d'hygiène dentaire dans les écoles de la Ville de Montréal, à partir de septembre 1964.

D'autres spécialistes de la Ligue ont aussi collaboré avec des commissions scolaires ailleurs dans la province, à titre de consultants en hygiène dentaire ou sur la question du lait dans les écoles.

Ligue canadienne de Santé. — Un membre de la Ligue d'hygiène dentaire préside au Comité de fluoration de la Ligue canadienne de santé. D'autres font partie du

dit comité. Les deux ligues ont continué à collaborer étroitement sur cette question de la fluoration, à Montréal et dans la province. Une de leurs opérations conjointes consiste à maintenir à date un relevé des municipalités qui fluorent leur eau de consommation, au Canada et dans le Québec.

Association dentaire canadienne. — La Ligue a continué à accorder son aide à l'ADC, dans la traduction et l'adaptation de fascicules et autres publications. De plus, la Ligue demeure en contact continu avec l'ADC, ainsi qu'avec toutes les organisations dentaires et d'hygiène publique, provinciales, nationales et internationales.

Films et rubans sonores. — Une série de six films-éclair (courts métrages, obtenus de l'American Dental Association) traduits et adaptés par les dentistes-hygiénistes de la Ligue, ont été télédiffusés à intervalles réguliers par huit postes de télévision du Québec, grâce à la coopération de CHLT-TV, canal 7, Sherbrooke.

Des diapositives, également préparées par les spécialistes de la Ligue, avec message parlé, passent également aux mêmes postes de TV.

A la radio, de courts messages, des questions et réponses, de brèves causeries, enregistrés sur ruban sonore, par le personnel de la Ligue aidé de techniciens compétents, ont circulé dans plusieurs postes de radio de la province.

Divers. — Le personnel de la Ligue collabore avec toutes les branches de l'hygiène générale, chaque fois que l'occasion s'en présente. Les activités de la Ligue dans ce domaine sont nombreuses et plusieurs agences volontaires, charitables, civiques en ont bénéficié. En résumé, partout où la cause de l'hygiène peut être avancée.

CONCLUSIONS

Au cours de la période qui s'est terminée le 31 mars 1965, les dentistes-hygiénistes et l'Administrateur de la Ligue d'hygiène dentaire croient avoir accompli

du beau travail. Et cela s'est fait avec un personnel réduit et un budget à peine suffisant, et aussi dans des conditions souvent pénibles.

La Ligue d'hygiène dentaire est fiante de s'être mérité l'estime de tous ceux qui l'ont vue à l'œuvre. Les témoignages d'appréciation reçus publiquement ou par écrit, les honneurs récoltés par ses représentants, sont la preuve que le travail accompli a été jugé excellent.

C'est avec une certaine nostalgie que les lignes suivantes sont écrites:

La Ligue d'hygiène dentaire telle qu'elle fonctionnait depuis septembre 1955 et jusqu'au 31 mars 1965 est maintenant chose du passé. Elle n'aura plus à son service les dentistes-hygiénistes sur lesquels elle a pu s'appuyer pendant presque 10 ans.

En effet, le Ministère de la Santé du Québec a pris la décision d'intégrer les cinq dentistes-hygiénistes de la Ligue dans sa Division d'Hygiène dentaire publique,

cela à partir du 1 avril 1965. C'est là, semble-t-il, une sage mesure de planification qui devrait servir la cause de l'hygiène dentaire.

Sans aucun doute, les dentistes-hygiénistes ainsi intégrés dans la Division d'Hygiène dentaire publique du Ministère de la Santé sauront accomplir tout leur devoir, ainsi qu'ils l'ont fait pour la Ligue d'hygiène dentaire. La santé publique et la profession dentaire en recueilleront les profits.

Le secrétariat continue cependant ses activités en faisant parvenir chaque semaine à tous les hebdomadaires ainsi qu'au journal *La Presse* un article traitant d'un sujet dentaire.

Il répond aussi à toutes les demandes d'information et distribue des brochures et des dépliants à la population ainsi qu'aux dentistes qui en font la demande.

*Administrateur, Ligue d'hygiène dentaire de la province de Québec.

426 est, boul. St.-Joseph



La ville de Halifax, site du congrès national de juin prochain, est située sur une péninsule que domine la Citadelle d'où l'on peut admirer la ville et le port. Près de la Citadelle est le Old Town Clock construit en 1803 sur l'ordre du Duc Edward de Kent, père de la Reine Victoria, qui était Commandant en chef à Halifax, à la fin du siècle dernier.

Congrès national

La réunion de pédodontie se tiendra à Halifax le 11 juin

Tous les congressistes sont invités à assister à la conférence qu'organise la Société de pédodontie de l'Atlantique conjointement avec la Société canadienne de pédodontie. Cette réunion se tiendra le 11 juin à Halifax immédiatement avant le congrès de l'Association dentaire canadienne. Les frais d'inscription sont de \$10.00 pour les membres de la SCP et de \$20.00 pour les autres dentistes.

On annonce le programme suivant:

- 9h.15 P. E. Currie, de Londres: Sujet à venir
- 10h.15 Questions
- 10h.45 F. Pulver, de Toronto: La préparation des cavités dans les dents temporaires
- 11h.45 Réunion d'affaires
- 12h.45 Lunch
- 2h.15 D. L. Rife, de Toronto: Sujet à venir
- 3h.15 Questions
- 3h.45 N. Levine, de Toronto: Traitement des enfants handicapés

Les frais d'inscription sont payables par chèque ou mandat au nom de Atlantic Society of Dentistry for Children. Bien vouloir indiquer son nom, son adresse, son téléphone et le nom de son hôtel à Halifax. Le secrétaire est le docteur R. E. Hoar, 99 Main Street, Westphal, Dartmouth, Nova Scotia.

Les chirurgiens buccaux se réuniront à Halifax du 13 au 15 juin

La Société canadienne des chirurgiens buccaux tiendra sa 13ième réunion annuelle conjointement avec le congrès national de l'ADC à Halifax du 13 au 15 juin. Les séances se tiendront à l'hôtel Nova Scotian et tous les membres de la profession sont les bienvenus.

LUNDI, 13 JUIN

- 9h.25 Bienvenue du président
- 9h.30 P. R. Dumke: Anesthésie pour les cas de traumatisme maxillo-facial
- 11h.00 G. M. Anderson: Influence des spécialités sur l'exercice général (Conférence du Memorial Grieve)
- 2h.30 J. A. Myrden: Traitement de carcinome des crêtes alvéolaires
- 3h.30 P. R. Dumke: Anesthésie
- 5h.30 Dégustation de homard

MARDI, 14 JUIN

- 9h.30 John Findlay: Diagnostic et traitement des malfunctions temporomaxillaires
- 11h.00 G. Ross Langley: Circulation sanguine locale, hémostasie et traumatisme chirurgical
- 12h.30 Déjeuner de la ville Halifax (Commonwealth Room)
- 2h.30 Réunion d'affaires
- 6h.00 Réception de la Société canadienne des chirurgiens buccaux (Salon du président, Hôtel Nova Scotian)

MERCREDI, 15 JUIN

- 11h.00 Réunion d'affaires (au besoin)

Colloque sur la dentisterie préventive

Le Dr McIntosh, secrétaire de l'ADC, annonce que, pour le Congrès national de Halifax, l'ADC prépare un colloque sur la dentisterie préventive. Cette séance spéciale aura probablement lieu le mardi, 16 juin, à 2 heures p.m.

Le sujet sera d'abord présenté successivement par un professeur de chirurgie dentaire, un officier dentaire, un dentiste hygiéniste et un omnipraticien; l'auditoire sera ensuite invité à prendre part à la discussion générale sous la direction du Président de l'ADC, le docteur P. S. Christie.

Les panelistes seront les docteurs J. Kreutzer, de Toronto (professeur), H. A. Grimsrud, de Regina (hygiéniste), R. A. Clappison, de Toronto (omnipraticien), et un représentant du Corps dentaire royal canadien.

Ce symposium est organisé avec le concours de la Compagnie Procter et Gamble du Canada, Ltée.

L'Association

Le Conseil exécutif reconnaît deux nouvelles sections de l'ADC et accorde \$9,500 pour organiser des tests d'aptitude

Le 14 février dernier, à l'ouverture de la réunion mi-annuelle de quatre jours qu'ils ont tenue au siège social de l'ADC, les membres du Conseil exécutif se sont trouvés en face d'un ordre du jour chargé.

Le Conseil a fixé les dates de trois réunions annuelles de l'ADC (à partir de 1968, les réunions du Conseil des Gouverneurs et les congrès nationaux se tiendront du lundi au samedi); on s'est occupé de questions touchant à la reconnaissance de nouvelles spécialités et aux tests d'aptitude pour les candidats aux facultés dentaires canadiennes.

Le Conseil a rédigé une déclaration définissant les responsabilités des gouverneurs de l'ADC qui sera soumise au Conseil des Gouverneurs à sa réunion à Halifax en juin.

Le Conseil a également établi une nouvelle procédure pour les réunions annuelles de l'ADC; il a adopté une politique nouvelle relativement à l'acceptation des octrois par l'Association (y compris les octrois aux comités du congrès); il a accordé un crédit de \$9,500 pour mettre en œuvre le programme de tests d'aptitude que recommande le Conseil d'enseignement.

Les futures réunions annuelles du Conseil des Gouverneurs et du congrès national auront lieu: à Vancouver du 27 mai au 1er juin 1968; à Montréal du 2 au 7 juin 1969; à Winnipeg du 1er au 6 juin 1970. J. G. Ryan de Vancouver est nommé président du comité du congrès de 1968.

Le Conseil a pris deux autres décisions au sujet du congrès 1966 de Halifax; il a nommé P. G. Anderson de Toronto officier chargé de l'installation du président, et il a choisi la dentisterie préventive comme thème de l'exposé spécial du congrès. Cet exposé de deux heures fait toujours partie du programme des congrès nationaux.

Par ailleurs, le Conseil a:

Accordé le statut provisoire de section

de l'ADC à l'Académie canadienne de dentisterie restaurative et à l'Académie canadienne d'endodontie;

Demandé au Comité des spécialistes et de la spécialisation de ré-examiner les normes de reconnaissance des spécialistes;

Confirmé la désignation du président P. S. Christie au poste de président du Comité consultatif spécial sur l'assurance commerciale (à la suite de la démission du président du comité, D. C. Way de London, Ontario);

Approuvé les dispositions prises en vue d'une conférence des exécutifs de l'Association dentaire canadienne et de l'Association dentaire américaine à Toronto les 12 et 13 mai.

A la suite des agissements répétés de techniciens dentaires en Ontario et en Colombie britannique, le Conseil a demandé au secrétaire, le docteur McIntosh, de recueillir de la documentation sur tous les aspects de la pratique illégale au Canada et à l'étranger, et de tenir ces renseignements à la disposition des membres corporatifs.

Le Conseil a été informé du progrès de l'enquête sur l'hygiène dentaire publique que l'Université de Colombie britannique conduit actuellement en coopération avec l'ADC. Le Conseil a aussi pris acte des derniers développements relatifs à la dentisterie au Ministère de la santé nationale et du bien-être social, et a reçu notification du transfert prochain du statut de membre corporatif du Royal College of Dental Surgeons de l'Ontario à l'Ontario Dental Association.

L'ADC prend position au sujet des négociations collectives des fonctionnaires fédéraux

Le 31 mars dernier le secrétaire de l'ADC, le docteur W. G. McIntosh, a adressé une lettre au Premier Ministre Lester B. Pearson pour lui faire, au nom de l'Association dentaire canadienne, cinq suggestions en rapport avec les négociations collectives pour les fonctionnaires fédéraux. Ces suggestions font suite à la préparation d'un projet de loi relatif à la fonction publique. On peut obtenir une copie de cette lettre en s'adressant aux quartiers généraux de l'ADC.

Canada

Le Comité sénatorial sur la vieillesse approuve un programme Medicare universel

Le rapport du comité spécial du Sénat sur la vieillesse, qui a été déposé au Parlement le 2 février contient deux recommandations concernant les soins dentaires.

La recommandation 19 demande que soient établis, sur une grande échelle, des services où les vieillards puissent se rendre ou se faire transporter pour y subir sans retard des examens et y recevoir tous les soins nécessaires à leur rétablissement. Ces services devraient comprendre des cliniques externes dans les hôpitaux, des cliniques gériatriques et, au besoin, des cliniques spéciales pour la santé mentale, les défauts de la parole et de la vue, les soins dentaires, et la réhabilitation.

La recommandation 29 se prononce en faveur de la création d'un programme universel d'assurance-santé, semblable à celui que propose la Commission royale des services de santé, et qui offrirait un ensemble complet de soins comprenant . . . les traitements dentaires . . . Si l'application de ce programme doit être échelonnée . . . il faudrait accorder une priorité aux vieillards.

Le Comité spécial a été désigné en 1963 pour étudier les problèmes que pose le développement du bien-être des vieillards. Le président est le sénateur David Croll.

En mai 1964, l'ADC soumettait au Comité un communiqué dans lequel elle demandait que la fluoruration soit rendue générale et obligatoire, et préconisait que les programmes de soins dentaires pour les personnes âgées qui ne peuvent pas se déplacer soient élaborés localement par les membres de la profession en collaboration avec les organismes d'assistance locaux; enfin, que des départements dentaires soient établis dans tous les hôpitaux pour dispenser à leurs patients des traitements dentaires.

Le communiqué de l'ADC répétait également que l'attribution de traitements aux vieillards ne doit pas se faire

au détriment des plus jeunes couches de la population.

Appel en faveur d'une assurance dentaire nationale pour les enfants

Un professeur de l'Université de Toronto vient de lancer un appel en faveur d'une assurance dentaire nationale pour les enfants, qui couvrirait les soins préventifs et les traitements. Le docteur A. M. Hunt, professeur d'hygiène dentaire publique à l'Université de Toronto, a exprimé cette idée au cours d'une conférence de presse organisée le 15 mars par la Ligue canadienne de santé à l'occasion de la semaine nationale de la santé.

Le Dr Hunt, après avoir souligné qu'il exprimait là son opinion personnelle, a déclaré qu'il fallait établir un plan national pour les enfants en dépit du manque de dentistes actuel. Pousser la demande de soins dentaires à dépasser le niveau actuel de l'offre est le seul moyen efficace d'encourager la formation d'un nombre suffisant de dentistes, d'hygiénistes et d'autres techniciens.

C'est la profession dentaire elle-même qui doit se charger d'accroître la demande et de réclamer un plan pour les enfants, a-t-il ajouté.

Un plan national pour les enfants nécessiterait une étude approfondie de la part de la profession, et l'appui des gouvernements fédéral et provinciaux. Le Dr Hunt a déclaré que les gouvernements devraient financer immédiatement des études sur le rythme d'accroissement des besoins dentaires d'une population qui tarde à se faire traiter. Il a aussi demandé aux gouvernements d'assumer les responsabilités légales qu'encourent les municipalités qui adoptent la fluoruration de façon à faciliter l'emploi de cette mesure.

Chronique internationale

Congrès sur les implants-aiguilles à Paris

La Société Odontologique des Implants-Aiguilles tiendra son 4ème Séminaire du

10 au 13 novembre 1966 à la Salle d'Iena, Paris.

Pour renseignements additionnels, s'adresser au docteur Michel Charon, Secrétaire Général de la SOIA, 58 rue Notre-Dame de Lorette, Paris 9e, France.

Organismes dentaires

La première assemblée du Collège royal des Chirurgiens-dentistes aura lieu le 14 mai

Quelques dentistes canadiens éminents seront investis 'fellows' du Collège royal des Chirurgiens-dentistes du Canada, lors de la première assemblée du Collège, qui aura lieu le 14 mai au Convocation Hall de l'Université de Toronto.

Le Dr Speck, de Toronto, secrétaire du Collège qui a annoncé la nouvelle, a déclaré: "Nous espérons que ces premiers titres seront conférés par le Gouverneur-général Georges Vanier." Il a aussi fait remarquer que la cérémonie aura lieu la veille de l'ouverture du congrès de l'Association dentaire de l'Ontario. Les dentistes qui seront à Toronto pour le congrès de l'ADO pourront assister à la cérémonie.

Le Collège a été créé le 18 mars 1965. Les membres de son premier conseil, élus les 16 et 17 septembre derniers sont les docteurs G. V. Fisk, de Toronto; Paul Geoffrion, de Montréal; A. W. S. Wood, de Toronto; R. L. Scott, de Brantford, Ontario; J. W. Neilson, de Winnipeg; C. H. Moses, de Toronto et W. D. Clark, de Stoney Creek, Ontario. Le président est F. A. Smith, de Vancouver, le vice-président C. H. M. Williams, de Toronto, et le registraire A. A. Antoni de Toronto.

Le Collège a pour but de favoriser une spécialisation de haute valeur dans la profession dentaire, de prononcer la reconnaissance et la nomination des spécialistes dûment qualifiés, d'accorder après examen le titre de 'fellow' et d'encourager la création de cours de spécialisation dans les facultés dentaires canadiennes. Les premiers examens pour le titre de 'fellow' auront peut-être lieu en février ou mars 1967. Les candidats au titre de 'fellow'

devront être des praticiens des cinq spécialités reconnues par l'Association dentaire canadienne: la chirurgie buccale, l'orthodontie, la périodontie, la prothèse et la pédodontie.

Le Québec augmente sa contribution à l'ADC

A sa réunion du 3 mars dernier, le Bureau des gouverneurs du Collège des chirurgiens dentistes de la province de Québec a décidé de porter de \$75 à \$100 la contribution annuelle de ses membres. Cette décision entrera en vigueur le 1er juillet 1966.

Seule une petite partie des \$25 additionnels perçus par le Collège des chirurgiens-dentistes demeurera dans ses coffres. La plus grande partie de cette augmentation sera versée à l'Association dentaire canadienne, mais l'Association dentaire de la province de Québec recevra aussi un octroi annuel.

C'est dans le but de confirmer sans équivoque son désir d'adhérer à l'ADC et de participer de façon active à ses initiatives que le Collège des chirurgiens-dentistes de la province de Québec a voulu porter à \$40 par membre le montant qu'il verse à l'association nationale, rejoignant ainsi le niveau de la contribution des autres provinces.

En annonçant la nouvelle dans l'*Information*, bulletin de liaison du CCDPQ, le registraire, le docteur Robert Le Blanc, énumère plusieurs des activités de l'ADC dont les dentistes de la province de Québec ont l'occasion de bénéficier. Il souligne que l'augmentation des frais de la licence permettra en même temps au Collège des chirurgiens-dentistes d'étendre sa propre action de façon à mieux servir ses membres.

Des séminaires de relations publiques pour les nouveaux praticiens de Vancouver

Une fois de plus, les praticiens nouveaux venus dans la région de Vancouver assistent à une série de séminaires organisés par le Comité des Relations publiques de

l'Association dentaire de Colombie britannique. A ces séminaires, on discute de la façon d'ouvrir un cabinet, des méthodes permettant de se constituer une clientèle, des examens, de l'évaluation des frais, des échelles d'honoraires et de la perception.

On insiste sur les relations publiques qui tiennent une place importante dans ces problèmes. Les nouveaux diplômés sont mis en rapport avec des praticiens établis qui peuvent les aider et les conseiller. Le responsable et ces séminaires est le Dr D. W. Findlay, de North Burnaby.

Facultés dentaires canadiennes

La Faculté de Toronto pourrait tripler le nombre de ses étudiants

La Faculté d'art dentaire de Toronto devra tripler le nombre de ses étudiants gradués et post-gradués pour aider à fournir un nombre suffisant de professeurs aux facultés dentaires qui se créent ou se développent au Canada.

C'est ce que déclarent le Doyen de la Faculté de Toronto le docteur R. G. Ellis ainsi que le docteur K. J. Paynter dans une note conjointe soumise le 24 février à la Commission chargée d'étudier les programmes des cours gradués en Ontario.

La note indique que la faculté torontoise devra ajouter 24,000 pieds carrés à son bâtiment dentaire. Le coût de cette opération dépasserait \$1 million. Il faudrait accroître le nombre de techniciens, secrétaires et infirmières, et ajouter au corps enseignant 17 professeurs à temps complet, ce qui augmenterait de \$770,000 les dépenses annuelles de fonctionnement.

Des étudiants du Manitoba en visite à la Faculté de l'Alberta

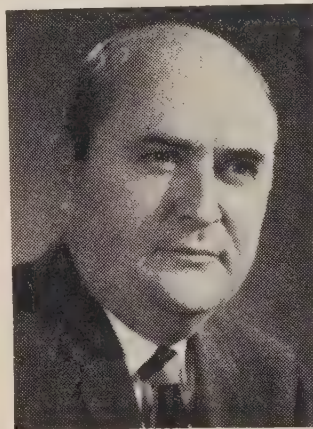
Pendant trois jours, du 25 au 27 février, les étudiants dentaires de l'Université de l'Alberta ont accueilli à Edmonton un groupe de 27 collègues de la faculté den-

taire de l'Université du Manitoba. Le programme offert aux visiteurs Manitobains était bien équilibré puisqu'il comprenait des exposés scientifiques, des rencontres sportives et autres festivités. Le succès de cette première rencontre encouragera l'échange de visites d'étudiants entre les universités.

Congrès Régionaux

Congrès de l'Association dentaire de la province de Québec

Le Dr Fernand Beaudoin nous communique le programme suivant du congrès de l'ADPQ qui aura lieu les 8-9-10 et 11 juin au Manoir Richelieu à Murray Bay, P. Québec.



Fernand Beaudoin

MERCREDI, 8 JUIN

3h.00 Inscription

JEUDI, 9 JUIN

- 9h.30 Benjamin Sedlezky: Endodontics—philosophy and procedures
- 9h.30 Gaston Chesnay: Correction chirurgicale du prognathisme mandibulaire
- 9h.30 J. Victor Legault: Méthodes d'approche de l'enfant en pédodontie
- 9h.30 Discussion de groupe (Paul Jean): Principes de base et leur application dans la pratique de tous les jours
- 2h.30 Jacques Fiset: Les appareils de précision semi-fixes
- 2h.30 M. L. Perel: 1. Relation of crown contours to dental health; 2. Temporization — temporary coverage

VENDREDI, 10 JUIN

- 9h.30 R. S. Stein: Current prosthetic procedures — 1. Diagnosis, crown and inlay construction (Traduction simultanée)
- 2h.30 R. S. Stein: Current prosthetic procedures — 2. Pinledge retainer, splinting, mounting procedure, functional records (Traduction simultanée)



Le Manoir Richelieu, Pointe-au-Pic.

SAMEDI, 11 JUIN

- 10h.00 Jacques Fiset: Utilisation de la porcelaine dans la réhabilitation orale
10h.00 Melvyn Shevell: Productive operative dentistry
10h.00 Marcel Hébert: Work simplification — dental comfort in the functional operating room

Economie

Des amendements excluent les agences commerciales du nouveau programme Medicare de l'Ontario

Le Medical Services Insurance Act de l'Ontario, qui a été adopté l'année dernière et qui doit entrer en vigueur le 1er juillet prochain, doit recevoir des amendements qui étendront la protection médicale du plan gouvernemental à tous les citoyens. L'assurance du gouvernement coûtera \$60 aux personnes seules, \$120 aux couples sans enfants et \$150 aux familles qui ont des enfants. Les agences commerciales en seront exclues, mais la protection de

groupe sera laissée aux agences commerciales et aux agences sans but lucratif.

Cependant, l'extension de l'assurance gouvernemental à toutes les personnes qui ne reçoivent pas d'aide, et cela pour une prime maximum déterminée, laisse prévoir que la protection de groupe y sera intégrée plus tard, ce qui permettrait au plan de l'Ontario de bénéficier des subventions fédérales, conformément au programme conjoint qu'Ottawa a annoncé l'été dernier.

1.8 millions de citoyens de l'Ontario dont le revenu est modeste recevront de l'aide pour payer leur prime. Le gouvernement se chargera aussi du Medical Welfare Plan de l'Ontario, qui est actuellement géré en coopération avec l'Ontario Medical Association. Ce plan assure des services médicaux à 300,000 personnes sous assistance publique.

Suivant l'amendement proposé, le gouvernement de l'Ontario remboursera 90 pour cent des honoraires courants tels qu'ils sont fixés par l'Ontario Medical Association. C'est la proportion que rem-

bourse actuellement aux médecins le plan non lucratif de leur propre profession.

Le gouvernement évalue à \$70 millions le coût annuel des subventions et de la gestion de ce programme.

L'AMC forme un comité de négociation collective

L'Association médicale canadienne vient de créer un comité spécial de négociation collective pour venir en aide aux médecins qui auraient besoin que l'AMC négocie collectivement de leur part.

Le gouvernement fédéral emploie à salaire plusieurs centaines de médecins. Peu nombreux sont ceux qui font partie de l'AMC, et il n'est pas possible qu'ils confient leurs négociations à l'AMC. Ils s'adresseront plutôt au groupe médico-dentaire de l'Institut professionnel de la fonction publique du Canada. L'AMC et son comité spécial ont offert leur appui pour manifester leur solidarité et pour profiter de l'expérience de ces négociateurs.

Fluoration

Les quotidiens canadiens soutiennent la fluoration

La grande majorité des journaux quotidiens du Canada s'est prononcée en faveur de la fluoration des eaux. C'est ce qui ressort d'une enquête récente, conduite par la Ligue canadienne de santé auprès de 118 quotidiens. 108 des journaux questionnés, soit 91.5 pour cent, ont répondu.

Interrogés sur leur attitude envers la fluoration, 73 se sont déclarés en sa faveur, cinq s'y sont opposés, 16 se sont dits neutres et 14 autres ont donné des opinions diverses, de nature neutre.

Les réponses des 14 derniers étaient accompagnées de commentaires comme: pas d'intérêt local; nous n'avons pas encore pris position; nous avons déjà la fluoration; nous ne sommes pas contre; pas convaincus; ne devrait pas être imposée sans référendum; mesure d'intérêt douteux si l'on ne souligne pas l'importance d'une

alimentation adéquate; nous désirons présenter tous les points de vue; nous informons nos lecteurs sans leur dire comment voter.

Trois Canadiens à la conférence de Washington sur la fluoration

Trois Canadiens ont assisté à une Assemblée nationale sur l'hygiène dentaire publique qui réunissait à Washington, du 6 au 8 février, 500 personnalités américaines des plus connues dans les domaines de la science, du droit et des affaires publiques. Cette assemblée unique était organisée par le Public Health Service des États-Unis, en coopération avec l'Association dentaire américaine pour célébrer le 21ème anniversaire de la fluoration des aqueducs aux États-Unis. Cette réunion de deux jours et demi avait pour but de donner un élan nouveau aux projets de fluoration, et d'encourager leur adoption. Cette assemblée coïncidait avec la Semaine nationale d'hygiène dentaire organisée chaque année par l'Association dentaire américaine.

Les Canadiens qui ont participé à la réunion sont: C. R. Castaldi de la Faculté de chirurgie dentaire de l'Université du Manitoba; L. H. Bowen du Health League of Canada, de Toronto; K. L. Croft, sous-secrétaire de l'Association dentaire canadienne.

Hygiène publique

Un index national d'hygiène dentaire?

Il est possible que le gouvernement fédéral entreprenne sous peu de compiler une documentation sur l'hygiène dentaire de façon à rassembler les informations dont ont besoin les organismes de santé locaux, provinciaux et internationaux. Cette idée émane de la réunion d'un sous-comité chargé d'étudier la question des statistiques en hygiène dentaire publique, réunion tenue à Ottawa les 21 et 22 février. Ce sous-comité est chargé de préparer des recommandations pour le Comité consultatif d'hygiène dentaire du

Ministère de la Santé nationale et du Bien-être social.

Les propositions du sous-comité contiennent un projet qui vise à reprendre l'Index canadien d'hygiène dentaire qui avait été rédigé sous l'égide de l'Association dentaire canadienne. Si ce projet était adopté, la conduite des enquêtes dentaires demeurerait la responsabilité des provinces, mais les autorités fédérales complèteraient l'Index en publiant une méthodologie conforme aux dispositions recommandées par l'Organisation mondiale de la santé. Ottawa offrirait aussi son aide au chapitre des enquêtes et de la préparation des enquêteurs, de la compilation des données, et du regroupement des recherches provinciales en termes d'évaluation internationale tous les 3 ou 5 ans.

Les membres du sous-comité sont Frank McCombie, de Victoria; W. C. King, de Halifax; T. L. Marsh et R. A. Connor, d'Ottawa; ainsi que R. M. Grainger de Toronto, qui en est le président. Le major W. H. Harrington du Corps dentaire royal canadien était invité à la réunion.

Le Dr McCabe donne une conférence au Collège canadien des Mesures d'urgence

Le 7 mars 1966, le docteur C. A. E. McCabe, dentiste-conseil au Service de santé d'urgence, a donné au Collège canadien des Mesures d'urgence une conférence intitulée "Victimes des armes nucléaires."

Le docteur McCabe est dentiste-hygiéniste de la Division dentaire au Ministère de la Santé nationale et du Bien-être social.

Tirés à part de conférences sur le rôle du dentiste dans les mesures d'urgence

Le texte de trois conférences récentes, définissant le rôle du dentiste dans les mesures de protection civile en cas d'urgence, sont disponibles. On peut se les procurer à la Division de l'hygiène dentaire du Ministère de la Santé et du Bien-être, Edifice Brooke Claxton, Ottawa, Ontario.

Les titres de ces articles, dont l'auteur est C. A. E. McCabe, conseiller dentaire au Service de santé d'urgence du Ministère de la Santé et du Bien-Etre, sont:

Role of the Dentist in Emergency Health Services;

Rôle du dentiste lors d'un désastre d'envergure nationale;

Rôle du Service de santé d'urgence en temps de paix et de guerre.

Palmarès

Au cours d'une cérémonie spéciale tenue à l'hôtel de ville de Paris le 26 novembre 1965, le conseil municipal de Paris a remis la médaille d'argent au docteur **Roland Baribeau** de Trois-Rivières, P. Qué.

Conseil des Gouverneurs • Le Conseil des Gouverneurs de l'Association dentaire canadienne se compose de membres choisis par les organismes dentaires des 10 provinces du Canada. Le conseil s'assemble, chaque année, durant les quelques jours qui précèdent le congrès national. Tous les membres de l'Association dentaire canadienne peuvent participer aux assemblées annuelles du conseil.

National Convention

Preventive Dentistry Symposium Announced

A symposium and round table discussion on preventive dentistry will highlight this year's CDA special presentation at the Halifax national convention, CDA Secretary McIntosh has announced. The symposium is scheduled for 2:00 p.m. on Tuesday, June 14.

Comments from a dental educator, a military dental officer, a public health dentist and a private practitioner will introduce the subject for general discussion in which the audience is invited to participate. CDA President P. S. Christie will act as moderator.

Invited panelists will be J. Kreutzer, Toronto, (dental education), H. A. Grimsrud, Regina, (dental public health), R. A. Clappison, Toronto, (private practice), and a representative of the Royal Canadian Dental Corps.

This symposium will be co-sponsored by the Procter and Gamble Company of Canada Limited.

Children's Dentistry Meeting in Halifax June 11

All dentists have been invited to attend a scientific meeting sponsored by the Atlantic Society of Dentistry for Children in conjunction with the Canadian Society of Dentistry for Children on Saturday, June 11, in Halifax. The meeting will precede the national convention of the Canadian Dental Association. Registration fee is \$10 for members of the CSDC and \$20 for other dentists.

The following tentative program has been announced:

- 9:15 P. E. Currie, London: Subject to be announced
- 10:15 Question period
- 10:45 F. Pulver, Toronto: Cavity preparation in deciduous molars
- 11:45 Business meeting
- 12:45 Lunch with learning
- 2:15 D. L. Rife, Toronto: Subject to be announced
- 3:15 Question period
- 3:45 N. Levine, Toronto: Care of handicapped children

Cheque or money order payable to the Atlantic Society of Dentistry for Children, with name, address, telephone number of office and residence and place of lodging while in Halifax, should be sent to R. E. Hoar, 99 Main Street, Westphal, Dartmouth, Nova Scotia.

Oral Surgery Meeting in Halifax June 13-15

The Canadian Society of Oral Surgeons will hold its 13th annual meeting in conjunction with the CDA national convention in Halifax June 13-15. The sessions, at the Nova Scotian Hotel, are open to all members of the profession.

MONDAY, JUNE 13

- 9:25 President's welcome
- 9:30 P. R. Dumke: Anaesthesia for acute maxillo-facial trauma
- 11:00 G. M. Anderson: The specialties in general practice (Grieve Memorial Lecture)
- 2:30 J. A. Myrden: Management of carcinoma of the alveolar ridge
- 3:30 P. R. Dumke: A second look at hypotensive anaesthesia
- 5:30 Lobster party

TUESDAY, JUNE 14

- 9:30 John Findlay: Diagnosis and treatment planning in temporomandibular joint dysfunction
- 11:00 G. Ross Langley: Local blood flow and haemostasis following surgical trauma
- 12:30 City of Halifax Luncheon (Commonwealth Room)
- 2:30 Business meeting
- 6:00 Canadian Society of Oral Surgeons Reception (President's room, Nova Scotian Hotel)

WEDNESDAY, JUNE 15

- 11:00 Business meeting (if necessary)

The Association

Research Council Makes Grants Worth \$13,535

At a meeting on April 4-5, the Council on Research awarded fellowships and summer studentships worth \$13,535 to 10 Canadian graduate and undergraduate students.

Fellowship awards for graduate education went to D. V. Chong \$3,000, W. S. Flatt \$1,450, J. K. Hicks \$1,250, B. Liebgott \$600, and G. E. Longhurst \$2,900. All are from the University of Toronto.

Studentships for the summer of 1966 were awarded to F. E. Levine, McGill University; L. Brodeur, Université de Montréal; J. Benbenick, University of Toronto; J. Levinson, University of Manitoba; and R. E. Racine, University of Alberta. These studentships worth \$4,335 will permit the employment of the named students in research laboratories at their respective universities.

In other actions the Research Council:

Updated the Canadian Dental Association's policy statement on water fluoridation, and

Appointed two subcommittees — one committee to study the possibility of setting up an industrial research fund to defray the cost of testing dental products, and the other committee to examine the possibility of establishing a Canadian award for dental research.

CDA Comments on Collective Bargaining Proposals for Federal Professional Employees

Five suggestions have been made for the Canadian Dental Association in connection with collective bargaining for professional employees of the federal government. The suggestions were made in response to a proposed Public Service Staff Relations Act which has been drafted for the government of Canada. A letter by CDA Secretary W. G. McIntosh, outlining these views, was sent to Prime Minister Lester B. Pearson on March 31. Copies of the letter may be obtained on request to CDA headquarters.

CDA Gift Marks Opening of New ADA Office Building

American Dental Association Secretary Harold Hillenbrand has thanked all members of the Canadian Dental Association for a contribution which the CDA recently made to the ADA Fine Arts Fund. This donation, to commemorate the opening of the ADA's new central office building in Chicago, was transmitted at the request of the CDA Executive Council.

In a letter addressed to CDA President P. S. Christie, Dr. Hillenbrand expressed warm appreciation for the gift which "symbolizes the very close relations which exist between our associations and our countries."

Conference on Dental Technicians Proposed

The Canadian Dental Association will be asked to hold a conference to discuss the formation of a national organization for dental laboratory technicians, accreditation of training programs for technicians, improvement of the educational and economic status of technicians, accreditation of dental laboratories, and co-operation between the dental profession and dental laboratory technicians. This proposal, recommended at the March 25 meeting of the CDA Auxiliary Services Committee, will be submitted to the annual meeting of the Board of Governors in Halifax next June. If this recommendation is approved by the Board, each corporate member will be asked to invite a representative of a provincial organization of dental technicians or laboratory owners to the proposed conference. The Council on Dental Education will also be asked to send a representative.

In other actions, the committee proposed:

That CDA corporate members establish an adequate complete denture service to meet the needs of the low income segment of the population and prevent the inroads of illegal practitioners;

That corporate members amend their regulations so as to permit dental hygienists to perform additional duties presently

authorized by other corporate members; and

That corporate members encourage schools of dental hygiene to include such additional duties in their curricula.

The committee also approved the principle of a system of national certification for dental assistants and proposed that the Council on Education develop a statement describing minimum requirements for training courses for dental assistants.

Canada and the Provinces

Education Fund Awards Five Fellowships Worth \$5,750

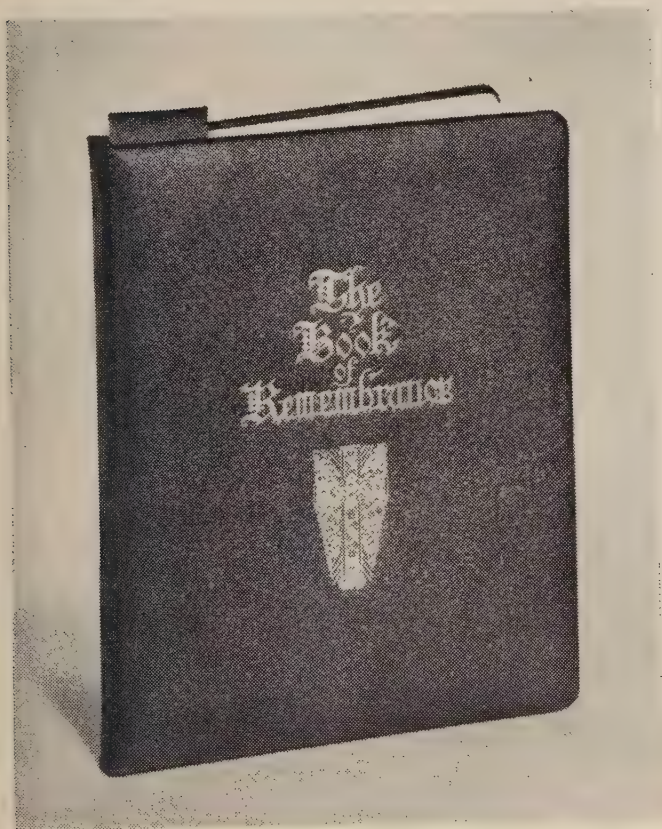
Two new fellowships, totalling \$2,700, for training dental teachers have been awarded through the program of the Canadian Fund for Dental Education. Recipients and the amounts of their awards are: M. E. Mickleborough, Edmonton, \$1,200, and K. H. Wright, Montreal, \$1,500.

Dr. Mickleborough will pursue graduate training in oral surgery. Dr. Wright is taking graduate training in periodontics.

Grants to the value of \$3,050 were renewed for three current CFDE fellows. They are: V. N. Direnfeld and G. A. Zarb, both of Toronto, and R. C. McClelland of Edmonton.

The education fund again awarded unconditional grants of \$500 to each Canadian dental school. Moneys from these grants are used at the discretion of the respective deans.

CFDE was established in 1962 to aid dental education, assist dental schools, promote scholarships and student loans and help recruit new students for Canada's dental schools. Information about teacher training fellowships may be ob-



Living Memorial gifts to the Canadian Fund for Dental Education provide an appropriate means to honour the memory of someone deceased and serve the future at the same time. The name of the person in whose name the contribution is made is inscribed for permanent record in a Book of Remembrance which is kept by the CFDE in the library of the Canadian Dental Association. Inspecting the book at the March 21-22 meeting of the CFDE trustees are Chairman J. D. McLean (l.) and former CFDE Vice-Chairman M. E. Bower. Living Memorial gift cheques may be sent to the secretary, CFDE, 234 St. George Street, Toronto 5, Ontario.

tained from the secretary, CFDE, 234 St. George Street, Toronto 5, Ontario.

New Tax Ruling on Travel Expenses

A report in the March 17 Toronto *Telegram* shows that travel expenses of a dentist who practises in one community and lectures at a university in another community may not be deducted for income tax purposes.

When the dentist is lecturing, he is regarded as a temporary employee of the university, and therefore not entitled to a deduction for travelling expenses.

Hospital Dentistry May Get New Deal in Nova Scotia

Hospital dentistry may be radically altered in Nova Scotia if proposed amendments to the provincial Public Health Act are adopted at the current session of the Nova Scotia Legislature.

Existing legislation only allows qualified physicians to admit a patient to a public hospital. An amendment contained in a bill tabled by Health Minister R. A. Donahoe is designed to permit a qualified dentist to join with a physician in an application for admission of a patient.

Another amendment would require that facilities be provided to accommodate dental students at a public hospital much the same as facilities are made available to medical students.

A third amendment gives the provincial cabinet the right to prescribe by regulations the facilities which teaching hospitals must provide for dental students as it now does in the case of medical students.

National Children's Dental Program Advocated

A University of Toronto professor has called for a national dental program embracing preventive and treatment services for children. A. M. Hunt, professor of dental public health at the University of Toronto, made the suggestion during a

March 15 press conference called by the Health League of Canada to mark National Health Week.

Dr. Hunt, who stressed that his comments were personal opinions, said that a national plan for children should be started despite a current shortage of dentists. Pushing the demand for dental care beyond the present level of supply would provide the only effective motivation for training an adequate number of dentists, hygienists and other workers, Dr. Hunt explained.

It is up to the profession to increase the demand and press for a children's program, he declared.

A national children's program would require intensive study by the profession and substantial support from provincial and federal governments. Dr. Hunt suggested that governments should immediately finance pilot studies on incremental dental care. He also asked governments to make it easier for municipalities to install fluoridation by assuming legal responsibilities.

Hospital Assn. Director Recommends Liaison with Dental Profession

A director of the Canadian Hospital Association has proposed that the Canadian Dental Association be invited to appoint a representative to the board of the national hospital association.

H. S. Jamieson, Moosomin, Saskatchewan, made the suggestion at the February meeting of CHA directors in Toronto. Dr. Jamieson, a practising dentist, is president of the Saskatchewan Hospital Association as well as a director of CHA.

Dr. Jamieson observed that the Saskatchewan Hospital Association had recently invited the Saskatchewan College of Dental Surgeons to appoint a representative to the SHA's committee on medical and nursing standards—one of five major committees of the provincial hospital body. He urged that other dental associations make similar contacts with hospital authorities at national and provincial levels in order to foster closer liaison between the two groups. This is particularly important "in view of the trend toward the demand for more hospi-

tal beds by the dental profession," Dr. Jamieson declared.

International Items

FDI President Dies

Knut Gard, president of the Fédération Dentaire Internationale, died March 28 in Norway at the age of 60. Dr. Gard was also secretary general of the Norwegian Dental Association, a post he had held since 1938.

Dr. Gard was born into a military family and chose first to follow the career of his father who was an officer in the Norwegian army. He was commissioned as an officer in 1927. While in service he decided to become a dentist and graduated from the Norwegian Dental School in Oslo in 1934.

During World War II Dr. Gard was one of the organizers of the 'Front of Unity,' the Norwegian underground movement, and because of this was placed in a concentration camp. One of his friends reported that even there he put his time to good use "as a dentist, as an optimist, and as a cheerful friend."

Dr. Gard was an honorary member of the national dental societies of Finland, Ireland, Sweden, Germany and the United States. He also taught social dentistry at the University of Oslo. He is survived by his wife, Liv Henriette, who is also a dentist.

Professor P. O. Pedersen of Denmark has been designated to serve as president for the remainder of Dr. Gard's unexpired term.

International Dental Meeting in Athens

An international conference on preventive dentistry will be held July 20-24 in Athens, Greece. The program will be sponsored by the Athens Dental Society in co-operation with the Panhellenic Dental Association. Information on the conference may be obtained by writing Dr. M. Neamonitakis, 8-10 Nikitara Street, Athens 142, Greece.

Berkshire Conference Slated for June 12-16

Tufts University 17th annual Berkshire Conference in Periodontology and Oral Pathology will be held June 12-16, 1966 at Eastover in Lenox, Massachusetts. The theme of the conference is "Occlusion and the Temporomandibular Joint." Lecturers include J. L. Bernier, Irving Glickman, Mario Martignoni, Robert McCombs, Benjamin Moffett, Sigurd Ramfjord, John Thompson and Dave Wilson.

The conference is open to general practitioners and dentists in specialized practice. Further information can be obtained by writing to Tufts Berkshire Conference, Tufts University School of Dental Medicine, 136 Harrison Avenue, Boston, Massachusetts 02111, USA.

Postgraduate Courses Offered in New York

The First District Dental Society will offer a variety of short postgraduate refresher courses during June 1966. Further information may be obtained from J. J. Adelson, First District Dental Society, Statler Hilton Hotel, 7th Avenue and West 33rd Street, New York, New York 10001, USA.

Dentistry for Children Courses at Eastman Dental Center in July

Two five day courses in dentistry for children will be given at the Eastman Dental Center, Rochester, New York, in July. 'Dentistry for Children I' will be held from July 11 to 15 and 'Dentistry for Children II' from July 18 to 22. Attendance at these courses is limited.

The courses will acquaint the dental practitioner with current paedodontic research and expose him to the latest procedures in paedodontics.

Further information may be obtained by writing to H. J. V. Goldberg, Eastman Dental Center, Box 879, Rochester, New York 14603, USA.

Dental Organizations

Quebec to Raise CDA Grant

The annual licensing fee for Quebec dentists will be raised from \$75 to \$100 beginning on July 1. A decision to this effect was reached by the College of Dental Surgeons of the Province of Quebec on March 3.

Only a part of the additional revenue will be used by the CDSPQ, according to Registrar-Secretary R. M. Le Blanc. A major portion will be allocated to the Canadian Dental Association and the Quebec Dental Association will also receive an annual grant.

Writing in the March issue of *Information*, Dr. Le Blanc observed that the CDSPQ was forced some time ago into a partial withdrawal from the CDA for financial reasons. Despite this partial separation the College continued to enjoy all the advantages of full membership in the national association.

The College now wishes to re-affirm its support for the CDA, the College official explained. We want to participate actively in the affairs of the national association, he added. The College will therefore increase its contribution to the CDA to \$40 per CDSPQ member, thereby putting the Quebec grant on the same level as all other provincial grants.

Dr. Le Blanc also stressed that the additional revenue from higher licensing fees would enable the College to provide better services to its members.

CDA President and Secretary Visit Vancouver on March 1

The skirl of bagpipes greeted Canadian Dental Association President P. S. Christie and Secretary W. G. McIntosh when the two CDA officers were escorted to the head table of a Vancouver and District Dental Society dinner meeting on March 1. Drs. Christie and McIntosh visited Vancouver during the annual presidential tour of the western provinces. In his address to the assembled dentists Dr. Christie described the

changes in dentistry foretold in the Report of the Royal Commission on Health Services and suggested various means of coping with these changes.

Other honoured guests at the meeting were life members of the VDDS who were introduced by William Miller, a past president of the Canadian Dental Association.

Brandon Physicians and Dentists Join for Oral Surgery Seminar

Twenty-one physicians and nine dentists heard about the latest developments in conservative and surgical treatment of temporomandibular joint problems and minor oral surgical techniques under local anaesthesia when they attended an all-day seminar at Brandon, Manitoba, February 26. The lecturer was A. G. Parnell, recently appointed head of oral surgery at the University of Manitoba's Faculty of Dentistry and chief of oral surgery at Winnipeg General Hospital. The seminar was jointly sponsored by the Dental Bureau of the Manitoba Department of Health and by the Western Manitoba Dental Society.

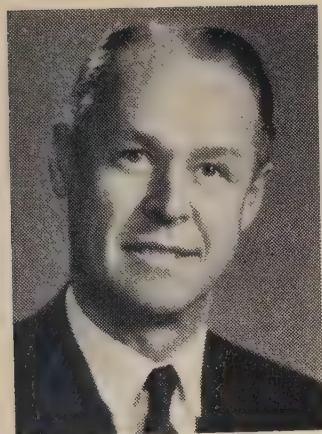
Canadian Dental Schools

Hamilton Periodontist Named UWO Professor of Oral Medicine

Dean W. J. Dunn has announced the appointment of D. S. Moore, Hamilton, as professor and head of the Department of Oral Medicine at the University of Western Ontario's new Faculty of Dentistry.

A leading periodontist, Dr. Moore will assume his new duties on July 1.

A native of Tillsonburg, Ontario, Dr. Moore graduated from the University of Toronto's Faculty of Dentistry in 1943. Following war service with the Royal Canadian Dental Corps, Dr. Moore returned to the University of Toronto where he earned a diploma in periodontics in 1947. Since then he has practised in Hamilton, specializing in oral diagnosis and periodontics. Dr. Moore also held



D. S. Moore

appointments in the undergraduate and graduate divisions of the Toronto Faculty of Dentistry and at Hamilton General Hospital.

Ontario High School Students Visit Toronto Faculty

A select group of high school students from four Ontario counties were given a first-hand look at modern dental education when they toured Toronto's Faculty of Dentistry on Thursday and Friday, April 14 and 15. The students came from district high schools of Durham, Ontario, Peterborough and Victoria counties.

After the tour of the Faculty of Dentistry on Thursday afternoon, the students attended a dinner at the University of Toronto's Hart House as guests of the Ontario Dental Association's Dental Public Health Committee. Later that night they were the overnight guests of Toronto dentists.

Visits by Ontario high school students to the Toronto faculty have become a regular feature of Ontario's dental recruitment program. The visits are organized by the ODA's Dental Public Health Committee in co-operation with the Toronto faculty.

Regional Conventions

Quebec Assn. Convention Set for June 8-11

Convention chairman Fernand Beaudoin has released the following program de-

tails of the Quebec Dental Association convention at Manoir Richelieu, Murray Bay, June 8-11:

WEDNESDAY, JUNE 8

3:00 Registration

THURSDAY, JUNE 9

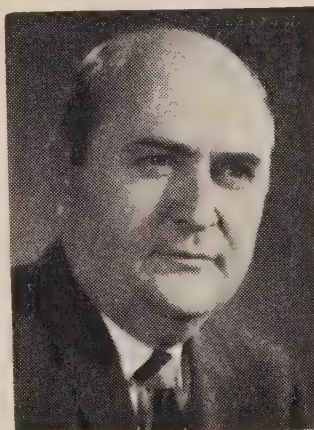
- 9:30 Benjamin Sedlezky: Endodontics—philosophy and procedures (English)
- 9:30 Gaston Chesnay: Surgical correction of mandibular prognathism (French)
- 9:30 J. V. Legault: Approach methods for the paedodontic patient (French)
- 9:30 Panel discussion (Paul Jean): Applying fundamental principles to everyday practice (French)
- 2:30 Jacques Fiset: Semifixed precision appliances (French)
- 2:30 M. L. Perel: 1. Relation of crown contours to dental health; 2. Temporization—temporary coverage (English)

FRIDAY, JUNE 10

- 9:30 R. S. Stein: Current prosthetic procedures—1. Diagnosis, crown and inlay construction (simultaneous translation)
- 2:30 R. S. Stein: Current prosthetic procedures—2. Pinledge retainer, splinting, mounting procedure, functional records (simultaneous translation)

SATURDAY, JUNE 11

- 10:00 Jacques Fiset: Use of porcelain in oral reconstruction (French)
- 10:00 Melvyn Shevell: Productive operative dentistry (English)
- 10:00 Marcel Hébert: Work simplification—dental comfort in the functional operating room (English)



Fernand Beaudoin

Montreal Fall Clinic Date Advanced

The Montreal Dental Club has announced that its 1966 annual Fall Clinic has been advanced by one week.

New dates, which replace dates listed on page A18 of the March Journal, are: Preconvention Seminar October 22-23, and Fall Clinic October 24-26.

Further information may be obtained from Miss M. Komarnicka, 4166 St. Catherine Street West, Westmount, P. Quebec.

Economics

Dental Diseases Our No. 3 Health Problem

Dental diseases are Canada's third major health problem according to an article by R. Kohn in the January 1966 *Canadian Journal of Public Health*.

Mr. Kohn, who was assistant director of research for the Royal Commission on Health Services, uses the percentage of total health services costs devoted to dental services as his criterion of ranking.

In 1961, dental services are estimated to have cost the Canadian people \$118.8 million—8 per cent of the total amount expended on health services. Exceeding dental services expenditures were expenditures for mental disorders (\$370 million or 24 per cent of total expenditures) and diseases of the respiratory system (\$121.7 million).

New Fee Schedule for Nova Scotia

The Nova Scotia Dental Association has distributed a revised fee schedule to all dentists in that province. The new schedule became effective on January 1.

The Nova Scotia schedule follows the terminology of the reference list of dental services and the principles of the relative value system established by the Canadian Dental Association.

Nova Scotia thus becomes the fifth province to revise and/or amend its dental fee schedule along these lines.

Prepayment Dentistry Covers Nearly 2 Million Americans

The American Dental Association has announced that 1,872,845 Americans are now covered by privately sponsored prepaid dental plans in 30 states, the District of Columbia and Puerto Rico.

Dental service corporations sponsored by state dental societies provide coverage to the largest number of groups. They cover 378,629 persons. Commercial insurance companies lead in population cov-

ered: 550,399 persons. Group practices or clinics cater to 616,389 persons. Non-profit insurance corporations cover 128,717 persons.

Most of the programs provide comprehensive coverage. Nearly half of the plans, covering more than a million people, are union-employer sponsored.

Coverage by commercial insurance companies has shown a phenomenal increase in recent months. These plans now cover more than half a million people—six times as many as were covered 18 months ago, and almost 30 per cent of all persons with dental prepayment coverage in the United States.

Fluoridation

Canadian Dailies Back Fluoridation

The vast majority of Canada's daily newspapers are lined up in support of water fluoridation. This fact emerges from a recent poll of 118 daily papers conducted by the Health League of Canada. Replies were received from 108 dailies (91.5 per cent of those questioned).

Asked to indicate their attitude, 73 said they support fluoridation, five said they are opposed, 16 said they are neutral, and 14 others gave various opinions in the neutral area.

The latter 14 replies contained such comments as: not a local issue; have open mind; have fluoridation; not opposed; not convinced; should not be imposed without a plebiscite; a dubious reform without stressing nutrition; wish to show all points of view; inform readers, but do not tell them how to vote.

Public Health

Ottawa May Assist with National Dental Health Index

The federal government may soon help to compile national dental health estimates that would dovetail with informa-

tion required by local, provincial and international health agencies. This proposal emerged at the conclusion of a two day meeting of a subcommittee on dental health statistics and evaluation held in Ottawa February 21-22. The subcommittee makes recommendations to the Advisory Committee on Dental and Oral Health of the Department of National Health and Welfare.

Implicit in the subcommittee's suggestions is a proposal to promote the Canadian Dental Health Index which had been developed under the aegis of the Canadian Dental Association. If adopted, actual conduct of dental surveys would remain a provincial responsibility but federal authorities would integrate the project by publishing a methodology compatible with the format recommended by the World Health Organization. Ottawa would also offer help with sampling and examiner instruction, data processing, grants in aid and consolidation of provincial findings into international estimates possibly every 3-5 years.

Members of the subcommittee are Frank McCombie, Victoria; W. C. King, Halifax; T. L. Marsh and R. A. Connor, both of Ottawa; and R. M. Grainger of Toronto, chairman. Maj. W. H. Harrington of the Royal Canadian Dental Corps also attended the meeting by invitation.

Three Year Dental Survey To Start in Nova Scotia This Year

The Nova Scotia health department will launch a three year survey of dental conditions in the province's school children beginning this year. The study will be directed by W. C. King, director of the Nova Scotia Department of Health's dental division.

The study, consisting of a series of surveys of children up to 15 years of age, will determine the incidence and prevalence of dental diseases and the level of care being received. Evaluation of the province's dental health program, especially the effectiveness of mobile dental clinics, will be an important feature.

Data collected from the Nova Scotia survey will also be used to develop conversion tables for adapting Canadian

dental health index data to the methodology recommended by the World Health Organization.

N. Manitoba Collegiate to Have Permanent Clinic

Frontier Collegiate at Cranberry Portage, Manitoba's first residential high school for northern students, will soon be equipped with a permanent dental clinic. So says an article in the March issue of *MDH News* published by the Manitoba Department of Health.

The school, in operation since last September, offers educational, social and cultural experiences to students in isolated northern Manitoba communities. Its present capacity — 150 residential students plus 50 day students—may be increased next September.

The proposed dental clinic is largely a result of a weekend dental treatment program organized by Manitoba Dental Services last fall. Lacking dental manpower, Dental Services Director C. H. McCormick at that time enlisted the aid of the Manitoba Dental Association and secured three dentists for a temporary 'crash' treatment program. The results were so encouraging that the provincial health department approved funds for equipment and supplies for a permanent dental clinic.

Although the new clinic will likely be staffed by Manitoba Dental Services at first, the services of Flin Flon and Le Pas dentists will likely be utilized in the future.

BC Health Department Report Features Dentistry

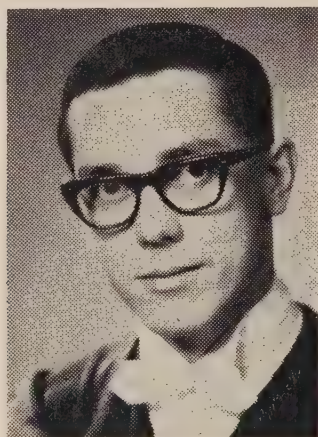
This year's edition of *Health Branch*, annual publication of the Department of Public Health of British Columbia, highlighted the activities of the Division of Preventive Dentistry.

The report on dentistry, which is 12 pages long, contains 11 pictures. The cover picture on *Health Branch* shows a dental hygienist applying a topical fluoride solution. Frank McCombie of Vic-

toria is the director of the Division of Preventive Dentistry.

Awards and Honours

The municipal council of Paris, France, presented a silver medal to **Roland Bari-beau**, Trois-Rivières, P. Quebec, at a special ceremony held in the Paris city hall, November 26, 1965.



M. E. Mickleborough

M. E. Mickleborough, a 1966 graduate of the University of Alberta, won first prize in the Edward H. Hatton Award (undergraduate division) at the 44th general meeting of the International Association for Dental Research at Miami Beach, Florida, March 24-27. The Hatton Awards are made to young dental scientists judged to be best in presenting meritorious papers on original research. Dr. Mickleborough is the first Canadian to win this award. His paper will be published in the *Journal of Dental Research*. Dr. Mickleborough was recently awarded a fellowship by the Canadian Fund for Dental Education.

Deaths

- Angus, Andrew Douglas. 86. Montreal. University of Bishops College, 1901. Life member CDA. 11-2-66.
- Brightman, Arthur Alvin. 50. Toronto. University of Toronto, 1940. 3-3-66.
- Eaton, Cameron Leroy. 77. Islington, Ontario. Royal College of Dental Surgeons of Ontario, 1911. Life member CDA. 3-4-66.
- Evon, William J. 29. Toronto. University of Toronto, 1960. 8-3-66.
- Fraser, Findlay Cecil. 78. Sudbury, Ontario. Royal College of Dental Surgeons of Ontario, 1914. Associate member CDA. 7-3-66.
- Hinds, Arthur Oswald. 82. Gore Bay, Ontario. Royal College of Dental Surgeons of Ontario, 1915. Life member CDA. 28-3-66.
- Leuty, Henry Douglas. 72. Toronto. Royal College of Dental Surgeons of Ontario, 1917. 1-4-66.
- MacPherson, Alexander D. 81. Port Dover, Ontario. Royal College of Dental Surgeons of Ontario, 1913. 20-9-65.
- Marshall, Earl. 67. Ottawa. Royal College of Dental Surgeons of Ontario, 1921. 24-2-66.
- McVicar, Gordon Davey. 64. Toronto. Royal College of Dental Surgeons of Ontario, 1925. 25-3-66.
- Marquis, Gratien. 42. Price, Comté Matane, P. Québec. Université de Montréal, 1950. 25-2-66.
- Pickering, Walter Henry. 75. Vancouver. North Pacific College, University of Oregon, 1918. 24-2-66.
- Sparkes, Ernest Bland. 80. Collins Bay, Ontario. Royal College of Dental Surgeons of Ontario, 1906. Life member CDA. 24-3-66.

Gingivitis

W. G. Cross. Bristol, John Wright & Sons Ltd., 1965. (Available from The Macmillan Co. of Canada Ltd., Toronto) 44 p. Illus. \$1.75

The graduate dentist in America in the past 15 or 20 years has become accustomed to textbooks — even those of an introductory nature — whose scope is far greater than that of this *Handbook on Gingivitis* by W. G. Cross. This basic deficiency alone might well condemn the booklet for use here. On the credit side it must be said that its printing is excellent, the paper topnotch and reproduction of the photographs is exceptionally good. Unfortunately, despite their excellence, the book suffers in the judgement of this reviewer from an almost complete lack of correlation between text and illustrations. The text itself is neither clear nor is it very informative.

In the author's discussion of three mechanical aids to scaling, he dismisses one as costing too much, the second is damned because it can only be used with difficulty in some locations in the mouth, and the third is dismissed by the bland statement that the author has had no experience with it whatsoever. The frankness of this confession might be highly commendable in a lecture or in private conversation. It cannot help but cause raised eyebrows when seen in what purports to be a miniature textbook.

W. F. Walford

Fluorine Chemistry

H. C. Hodge and F. A. Smith. Vol. 4. J. H. Simons, ed. New York and London, Academic Press, 1965. 786 p. Illus. \$30.80

It would be difficult to find more qualified authors to write a book on fluorine chemistry than Drs. Hodge and Smith. Both have done excellent research and written many papers on the subject.

This publication must surely rank as one of the most exhaustive and authoritative surveys on the subject of fluorine chemistry ever published. The bibliography alone ex-

tends over 85 pages and contains about 3,400 references. The physiological properties of the fluorine ion are thoroughly reviewed from the toxic effects of excessive fluoride ingestion to the detrimental effects of sub-optimal intake. The metabolism of fluoride is discussed with equal authority, including storage by bones and teeth, and the relationship of this storage to maintenance of health to both. The authors have also included discussion of the falsely alleged carcinogenic properties of the fluoride ion.

This excellent review is highly recommended as a reference for anyone interested in the field of fluorides.

K. J. Paynter.

The Pharmacological Basis of Therapeutics

L. S. Goodman and Alfred Gilman, ed. Ed. 3. New York, Macmillan; London and Toronto, Collier-Macmillan, 1965. (Available from Collier-Macmillan Canada Ltd., Toronto) 1785 p. \$24.75

Goodman and Gilman in 1941 produced a bible for the student of pharmacology, and it remains so now. The third edition covers all aspects of pharmacology and toxicology. It is a massive and comprehensive work of 1,783 pages. For the student of pharmacology and as a reference text the book is invaluable. However, for the practising dentist it has little practical value as an office reference. The practitioner would have difficulty in finding guidance on the application of drugs for everyday use. For the dental student this book is almost universally recommended as a basic pharmacology reference book, and should remain so. It should certainly be included in every dental library for such use.

In the third edition the authors have received assistance from 43 contributors, all outstanding in specific disciplines. In spite of this, there is no lack of organization or clarity of style, and the philosophy and objectives of the earlier editions are continued throughout.

The third edition appears to be the very best of Goodman and Gilman.

L. E. Francis

Pharmacotherapeutics of Oral Disease

A. H. Kutscher, E. V. Zegarelli and G. A. Hyman., ed. New York, Toronto, London, McGraw-Hill, 1964. 690 p. Illus. \$17.50

Pharmacotherapeutics of Oral Disease has been edited by A. H. Kutscher, DDS, E. V. Zegarelli, DDS, MSc and G. A. Hyman, MD, but the bulk of the contributions are the efforts of 134 authors, all experts in pharmacology or therapeutics.

The volume consists of three sections and an epitome section which appears on tinted paper in the middle of the book. Part 1 deals with general principles of pharmacology, such as effects of drugs, administration of drugs, untoward effects of drugs, and so forth. Part 2 deals with general consideration of drug groups. In this section there is discussion of specific agents like anaesthetics, sedatives, analgesics, antihistaminics, and so forth. Part 3 deals with clinical therapeutics. This section is devoted to various pathological conditions and their management. The discussion touches on allergies, rheumatic heart disease, dental caries, diseases of childhood, infections and inflammation, and so forth. Commonplace situations are well covered, and those that are likely to be rare are also thoroughly discussed.

This book will be invaluable to the practising dentist. It is also recommended to the dental student who usually has difficulty in relating his knowledge of basic pharmacology to various disease entities.

All of the material is well written, easy to find and to the point. In spite of its 690 pages, the book has no long drawn-out discussions and there is no loss of time in acquiring the needed information.

L. E. Francis

Oral Medicine: Diagnosis and Treatment

L. W. Burket. Ed. 5. Philadelphia and Montreal, J. B. Lippincott Company, 1965. 644 p. Illus. \$16.00

This new edition of 644 pages is generally a well organized review of oral lesions, particularly those which are manifestations of general systemic diseases. This edition is 32 pages larger than the previous edition. It is on better paper. It is very widely inclusive of issues that relate to oral medicine. The bibliography is extensive and the clinical photographs are good.

It is indeed difficult to understand or to excuse the almost complete lack of attention to oral exfoliative cytology as an aid in the early diagnosis of cancer of the mouth. There is a large separate chapter on oral cancer which does not even mention exfoliative cytology. Since this topic is one of the most current in the field of oral diagnosis, it is

only reasonable to expect that exfoliative cytology would receive discussion.

Although there are sections of the text devoted to diseases of the hard tissues of the dentition, and special statements concerning paedodontics and gerodontics, there is a lack of reference to periodontal disease. Since physicians and others in the health field would be inclined to use this book for reference, inclusion of material concerning periodontal disease seems desirable.

In spite of the few adverse criticisms stated above *Oral Medicine* continues to be an excellent reference work in this field.

C. H. M. Williams.

Emergencies and Urgent Complications in Dentistry

W. B. Irby and K. H. Baldwin. St. Louis, C. V. Mosby Company, 1965. 391 p. Illus. \$15.00

This book is the co-operative effort of two oral surgeons in the American armed services who have had extensive experience in the hospital environment. This experience has permitted them to gather a great deal of knowledge about the subject of emergencies and urgent complications in dentistry and their many ramifications. This information is now made available to all dentists in a form that is concise and instructive.

This book has primary interest for oral surgeons and dentists who treat ill patients in a hospital. Nevertheless, a basic understanding of emergencies experienced in office practice is fundamental to the proper conduct of any modern general dental practice. The limitations and responsibilities which these complications impose upon the dentist in his choice of treatment should be clearly understood in the light of current advances in therapeutics.

If the book suffers at all, it is from oversimplification of the information required for diagnosis of medical emergencies which one may encounter in the office. To consult a list of symptoms in order to arrive at a conclusion is to ignore the importance of a history and other pertinent data without which a proper diagnosis cannot be made. This problem arises from the authors' desire to present their material in a concise form, and undoubtedly the limitation of space has dictated their method of treating this subject.

Many facets of dental treatment which are not of an emergency nature have been included in the text. It is a compilation of many facts pertaining to dental practice and a synthesis of this information, after an exhaustive study of the literature, into a readable text.

J. F. Methven

Radiology in general dental practice

The application of radiology to dentistry is constantly being extended. Nevertheless, most dentists still use radiographs principally to disclose the presence of dental caries and to study the condition of the bone at the apices of teeth or at the gingival margins. Even so, it is common for small but clearly apparent lesions at the apices of teeth to be overlooked, especially when there is superimposition of the shadow of the maxillary antrum or nasal fossa over that of the tooth. While many younger and some older dentists appreciate that they have a responsibility to equip themselves to recognize the presence of any abnormality that may be disclosed in radiographs, most dentists fail to accept this responsibility. Yet it is well known that the first signs of serious disease may frequently be seen in radiographs of the jaws, and it is further true that in some instances the only hope for cure is early recognition of the initial signs of the disease. It is increasingly evident that dentists may be the first to meet with diseases not primarily of the teeth and jaws; yet their ability to recognize those diseases is not sufficiently developed. Two reasons may account for this. One is the stress laid on training the dental student primarily as a craftsman capable of restoring defects in the dentition. In consequence too little time is spent on or, indeed, is available for the inculcation of medical knowledge. Furthermore, because of this attitude on the part of some dental educators, fewer patients with diseases of the jaws are attracted to dental schools for treatment. As a result, valuable teaching material is lost to the student.

In general practice the occasions are few when the dentist encounters diseases of the oral cavity or jaws other than dental caries and periodontic disease. Due to this further lack of contact he loses such clinical awareness as he may have had on graduation.

One jaw radiograph recently referred to me for study disclosed lymphosarcoma in a child whose first symptoms were pain and swelling in the mandible. The indications of the abnormality and the typical radiographic changes had been overlooked by the radiologist. The disease ended fatally five weeks after the first examination. Other recent jaw radiographs have revealed Letterer-Siwe disease which is rarely seen in radiographs of bone; hyperparathyroidism with typical jaw changes, unrecognized by the dentist and radiologist although the presenting symptom was swelling in the mandible; leukaemia presenting as a lesion in the maxilla; osteogenic sarcoma presenting clinically and treated as osteomyelitis of the mandible; cysts and benign tumours. Not all of these patients were seen in any one department but all were dental patients and most of them had been seen first by dentists. Obviously, dentists encounter a

great deal of disease. If they use x-ray machines, they ought to be able to recognize the presence of abnormality even if they cannot identify its nature.

There are three requirements for the proper application of radiology in dental practice.

First, there must be radiographs of good quality and enough of them to reveal the lesion or suspected area as completely as possible. All too often one radiograph is made which includes only a small part of the relevant area. Many dentists who seek to attain the highest possible skill in other dental services produce radiographs of less than fair quality. Perhaps this paradox stems from the fact that the dentist usually only sees his own radiographs; thus there is not the same stimulus toward good quality as there might be were it known that others would see and judge the quality of his radiographs. A dentist who is otherwise meticulous in handling his dental materials may also be careless of his developing solutions. These may be stale, not at the correct temperature or the processing time may be wrong. Some dentists do not even have a thermometer or a timer!

The second requirement is the ability to recognize whether the appearances revealed in the radiographs are normal or abnormal. The variations within the normal are protean and often difficult to discern or evaluate. There is not sufficient time during the undergraduate curriculum to teach them all. Therefore, radiological education must continue throughout the years a dentist is in practice.

Finally, the dentist must know what abnormal conditions occur in the teeth and jaws and what changes they produce in the tissues so that radiographic revelation of these changes may be interpreted in terms of developmental abnormality, injury or disease. It would be unreasonable to expect the busy general practitioner to be able to recognize abnormality with the same facility as the specialist, but once the dentist places an x-ray apparatus before his patients the latter have the right to expect reasonable skill in the use of that apparatus. It is incumbent upon dentists to produce good radiographs and to acquire equal skill in interpreting them, if only to determine whether an abnormality does or does not exist. If necessary, the dentist can thereafter refer the radiographs or the patient to someone whose experience includes a greater knowledge of diseases. Not to be able to do this is to fall short of obligations, and this is a failing of too many dentists insofar as radiology is concerned. Most dentists are aware of this and are eager to amend the situation. It is for this reason that symposia from the hands and minds of men who are specially trained are of great value. The Journal is to be commended upon bringing together the fruits of so many highly experienced men. On the other side, dentists must make every effort to use the information provided and to extend their knowledge even further, thereby attaining the gratification of serving patients to the fullest possible extent.

H. M. Worth

Les auxiliaires

On n'est jamais si bien servi que par soi-même — Proverbe.

S'il est un sujet qui, dans les sphères dentaires internationales fait couler beaucoup d'encre, c'est bien celui qui intéresse les auxiliaires! En gros deux thèses sont en présence: il y a ceux qui les rejettent et il y a ceux qui les acceptent. Parmi les pays qui les acceptent: les Etats-Unis et le Royaume-Uni, parmi ceux qui les rejettent: l'Allemagne et la France.

Lors d'un congrès de l'Association dentaire néerlandaise, la 'Nederlandsche Maatschappij tot Bevordering der Tandheelkunde' au nom si pittoresque, le Dr G. H. Leatherman, Secrétaire général de la Fédération dentaire internationale, a évoqué le problème dans une conférence fort remarquée et sur laquelle nous reviendrons plus loin. Dans le *Bulletin de la Société suisse d'odontologie* par ailleurs, le Dr Karl Lutz l'a soulevé lui aussi il y a quelque temps. Nous avons pu lire (. . . avec stupéfaction) que cet éminent confrère estimait, pour la Suisse, dépasser les 'Dental-hygienists' qui se contentent aux Etats-Unis de faire les détartrages. Pour arriver à soulager efficacement les praticiens, helvétiques paraît-il surchargés, il serait indispensable, d'après le Dr Lutz, de mettre en œuvre des 'Dental-nurses' qui, éduquées par la profession, se verraient confier sous sa direction et sous sa responsabilité, non seulement les actes prophylactiques, mais encore les obturations de dents de lait et de dents de six ans. Notre confrère justifie son projet en prétextant le manque de chirurgiens-dentistes dans son pays qui n'est pourtant pas à notre connaissance, du point de vue économique, particulièrement sous-développé. Ne serait-il pas plus indiqué alors, plutôt que de confier des soins dentaires à des personnes dont la qualification serait en tout état de cause sujette à caution, de faire en sorte qu'il y ait suffisamment de chirurgiens-dentistes en créant des écoles dentaires à la place d'écoles d'hygiénistes et en ouvrant plus largement les frontières aux chirurgiens-dentistes étrangers?

Parmi les dirigeants professionnels pourtant, l'un des plus fervents thuriféraires du personnel auxiliaire est le Dr Leatherman. Expliquant que la médecine emploie elle aussi des auxiliaires et abandonne de nombreuses fonctions qui, en principe, entreraient dans ses prérogatives, il nous pousse à adopter les auxiliaires.

A notre avis, si elles peuvent à la rigueur se concevoir dans les pays insuffisamment développés où il n'y a que peu de chirurgiens-dentistes et où les conditions économiques empêchent d'en former plus, elles nous semblent parfaitement inutiles et superfétatoires dans des pays où il est possible d'en former suffisamment.

Il est évident que des solutions préconisables en Afrique ou aux Indes ne sont pas obligatoirement celles qui doivent prévaloir en Europe! Si le chirur-

gien-dentiste ne peut que difficilement se passer d'une aide (à qui il est facile d'ailleurs d'inculquer quelques notions générales de prophylaxie dentaire) ou d'un mécanicien, il en est tout autrement de 'dental-hygienists' ou de 'dental-nurses' à qui l'on confierait des travaux que, pour notre part, nous considérons non pas comme accessoires mais bien comme étant d'une importance primordiale et du domaine exclusif du praticien. En effet, obturations et détartrage sont pour l'avenir les bases de notre profession car ils sont du domaine conservateur qui est celui qui doit de plus en plus requérir l'attention des chirurgiens-dentistes.

Nous n'ignorons pas qu'il existe environ 8,000 hygiénistes aux Etats-Unis, mais nous doutons fort pour notre part qu'elles n'y aient été introduites que pour des raisons d'ordre uniquement professionnel. Les renseignements qui sont en notre possession nous donnent à penser que les chirurgiens-dentistes qui les emploient s'y retrouvent largement.

Or tant qu'il n'y avait d'hygiénistes qu'outre-Atlantique, le problème ne nous touchait que de très loin, mais comme à l'heure actuelle l'on envisage d'en former en Suède, en Suisse et même en Hollande, on se doit de réfléchir aux moyens de pallier une telle invasion.

Il est parfaitement inexact par ailleurs de prétendre que dans les pays d'Europe continentale l'opposition de la profession dentaire à l'introduction d'hygiénistes ou de nurses est uniquement basée sur la peur de la voir se diluer. Ce que nous craignons, c'est que l'Art dentaire ne revienne à des temps qui ne sont pas si éloignés puisque nos parents les ont encore connus et où quasi n'importe qui pouvait l'exercer.

Nous craignons aussi et ceci est peut être le point capital que la santé publique, elle, n'y trouve pas toujours son compte!

Jean Jardiné

Cet éditorial a d'abord paru dans le numéro du 22 décembre 1965 de la revue *Le Chirurgien-Dentiste de France*.

letters • courrier

Don't Cut the Journal!

To the Editor:

After reading your editorial, "Obstacles in the Path to an Ancient and Honourable Goal," in the April issue I was astonished and dismayed at the obvious inference contained therein.

Let me say at the outset that in my considered opinion any curtailment of the editorial content of the Journal would be a grave mistake.

If ever there was a time when Canadian dentistry needed a strong and vigorous national association, that time is here and now. But the Canadian Dental Association — in fact, any voluntary organization — can only be effective as long as it maintains close contact with its members. The CDA cannot develop any meaningful consensus if its Journal — the principal avenue of communication between members and the Association — is to be hamshackled for lack of adequate funds. This is the path of false economy.

If it is to serve the profession adequately, the CDA must be free to inform and stimu-

late constructive discussion through the pages of the Journal. Only in this way can the Association generate the sense of belonging which is so essential to the survival of a cohesive national body.

Our professional organizations are not the only groups that are exposed to the relentless pressure of rising prices. But surely we must retain a sense of proportion about this problem. After all, we do not buy a smaller suit just because the price of clothing increases year by year. And we do not purchase a used car instead of a new one just because the new vehicle is more expensive. Nor do we court hunger even though the cost of food continues to climb inexorably. Why should we then curtail the Journal because of mounting printing costs?

Surely we have enough pride in our profession to ensure that additional funds will be forthcoming so that the official organ of the Canadian Dental Association need not be curtailed.

Lest our heirs brand us as a generation that lacked vision and foresight, I call upon my confreres to support the Canadian Dental Association and its Journal.

H. S. Grey, DDS,
57 Riverwood Pkwy, Toronto, Ont.

Wants 'English Only' Journal

To the Editor:

Re your editorial in the April issue of the *Journal of the Canadian Dental Association*—I have very little sympathy for your problem. If you want to cut the cost of the Journal, print it in English only. If it will help any, you can strike my name off your mailing list.

T. G. Parsons, DMD,
615 Sixth St., New Westminster, BC.

Duty on Imported Equipment and Material

To the Editor:

I would like to reply to Dr. McIntosh's letter which appeared in the April issue of the Journal. Dr. McIntosh goes into an explanation of the tariff laws on dental equipment and at one point states that many of these tariffs were largely eliminated in 1955 through the efforts of the Canadian Dental Association.

I would suggest that the time has come again for the Canadian Dental Association to exert its efforts to reclassify many items which are used exclusively for the practice of dentistry and directly in the oral cavity, and which today have customs tariffs imposed on them. For example, why should an ultrasonic tooth cleaner be subject to duty? It is an instrument used directly for the prac-

tice of dentistry just like surgical forceps and hand instruments.

Mark Lazare, DDS,
12774 Gouin Blvd. W., Pierrefonds, P. Que.

Bluenose Gains an American Admirer

To the Editor:

I have admired the photo by Gary B. Myers on the cover of the February issue of the Journal and wish to ask if it is possible to obtain a reproduction. Also, can you identify the vessel for me?

F. A. Smith, PhD,
Associate Professor of Radiation Biology
(Toxicology),
University of Rochester,
Rochester, New York, USA.

Dr. Smith has been put in touch with photographer G. B. Myers who provided us with the picture of *Bluenose II*. (Ed)

Erreur dans le texte français du bulletin de demande de réservation de chambres de la session annuelle de la FDI à Tel-Aviv

Au rédacteur:

Je m'empresse de vous signaler qu'une erreur tout à fait regrettable s'est glissée dans le texte français du bulletin B de demande de réservation de chambres de la session annuelle de Tel-Aviv. Le prix des chambres y est en effet donné comme comprenant la "demi-pension." Or ce prix ne comporte que la chambre et le petit déjeuner.

Vos compatriotes qui se sont déjà inscrits pour la réunion ont tous été prévenus de cette erreur mais je vous serais cependant reconnaissant de bien vouloir faire paraître une rectification dans votre journal dentaire national. La prochaine *FDI News Letter* risque en effet de parvenir trop tard aux congressistes.

Si certains de vos confrères, tout en ayant l'intention d'assister à la session, ne s'y sont pas encore définitivement inscrits, veuillez également les prévenir.

Nous voulons éviter dans toute la mesure du possible que des confrères francophones ne découvrent en arrivant à Tel-Aviv que leurs notes d'hôtel et de restaurant seront bien plus élevées qu'ils n'escomptaient.

Les versions anglaise, allemande et espagnole du bulletin sont correctes. Seul le texte français ne l'est pas.

Je regrette vivement de vous donner ce surcroît de travail et en vous remerciant vous prie de croire, cher confrère, à l'assurance de mes sentiments les meilleurs,

Gerald Leatherman,
Secrétaire Général de la FDI,
Londres, W. 1, Angleterre.

Current thinking about radiation dangers

D. W. Stoneman,* DDS, Toronto, Ontario

Dentists must be vigilant about the radiation hazards to which they, their patients and other persons are exposed. Measures for the protection of the patient include collimation of the primary beam to a diameter of 2.75 inches at a distance of 8 inches from the focal spot, placement of sheet aluminum between the beam source and the patient to filter off useless soft rays, use of an open-end shielded cone in place of the traditional plastic director cone, employment of lead aprons, a minimum number of film exposures consistent with diagnostic requirements, observance of good radiographic technique, and periodic examination of x-ray equipment to detect any radiation leakage. The operator should avoid the primary beam and should maintain an average distance of six feet from the patient's head. Suitable barriers in the floor, ceiling and walls may be required to shield other persons within or beyond the confines of a dental practice. Whereas somatic exposure was formerly considered significant, radiation received by the reproductive organs is now regarded as of paramount importance. Nevertheless, persons, such as dentists, who are occupationally exposed to radiation, may be allowed a slightly higher exposure without affecting the mutation rate of the population as a whole and without immediate or delayed somatic injury.

Les dentistes doivent se montrer très prudents envers les dangers de radiation auxquels eux-mêmes, leurs patients, et d'autres personnes sont exposés. Les mesures de protection du patient comprennent:—la collimation du faisceau principal à un diamètre de 2.75 pouces à une distance de 8 pouces de l'anode,—l'introduction d'une feuille d'aluminium entre la source de rayons et le patient dans le but de retenir tous les rayons inutiles, — l'utilisation d'un cône plombé à bout ouvert au lieu du cône traditionnel en matière plastique,— l'emploi de tabliers de plomb,— la réduction au minimum du nombre de films nécessaires au diagnostic, — l'observation d'une bonne technique radiographique,— et la vérification périodique des appareils afin de déceler toute fuite de radiation. L'opérateur doit éviter le faisceau principal, et doit se tenir à une distance moyenne de 6 pieds de la tête du patient. Il peut devenir nécessaire de placer des écrans protecteurs au plafond et sur les murs pour protéger les personnes placées plus loin. Alors qu'autrefois on se préoccupait beaucoup de l'exposition somatique, on se préoccupe maintenant davantage de l'exposition des organes reproducteurs. Toutefois, les personnes qui, comme les dentistes, sont exposées aux radiations du fait de leur profession, peuvent supporter une exposition légèrement plus élevée sans que cela

affecte le taux de mutation de l'ensemble de la population, et sans souffrir de dommages somatiques dans l'immédiat ou par la suite.

Man has been exposed since his origin to environmental low-level radiation emanating from unstable elements in the soil and sources in outer space. The evolution of Man, who is himself slightly radioactive, may have been influenced by this background radiation. Buildings constructed of brick and stone, radium utilized for luminous watch dials and the advent of television receivers have added to Man's cumulative radiation exposure. Medical and dental exposures to ionizing radiation further augment the overall dosage received by a population.

Detonation of the first atomic bomb over Hiroshima ushered in the atomic age. Subsequent radioactive fallout following nuclear testing forced scientists to concern themselves with the long term effects of low-level radiation.

It was at once apparent that the most immediate economies could be effected in medical and dental exposures. This led to a reassessment of techniques and attitudes in order to minimize dosages and to bring into proper perspective the benefits gained and the risks incurred.

DANGERS

Shortly after Roentgen's discovery of x-rays in 1895 came the realization that prolonged exposure to radiation could produce erythema. At first it was thought that excessive doses could be avoided if patient exposure were confined to levels insufficient to result in erythema. It soon became apparent, however, that repeated suberythema exposures could result in delayed damage to the operator of x-ray equipment. Changes were subsequently observed in the fingernails and skin of those persons who made a practice of holding films for patients. The fingernails

became ridged and the skin developed keratoses that ulcerated and failed to heal. Malignant changes developed in some individuals and fingers had to be amputated. In fact, radiologists were thought to have a shorter life expectancy than other medical specialists.

The amount of radiation delivered to the body tissues of a patient is referred to as the somatic dose. The quantity which irradiates the reproductive organs is called the gonadal dose. Somatic doses, which are relatively small in dental radiography, produce tissue reactions which result in almost complete recovery. Gonadal doses, however, result in changes which are probably cumulative and permanent. This means that any gene mutation, being irreversible, is passed on to subsequent generations. Since mutant genes are predominantly recessive, accompanying changes may not be expressed for several generations.¹ Most mutations are unfavourable to the species, although this does not necessarily imply the inevitability of gross deformities. Geneticists believe that there is a linear relationship between frequency of mutations and dose and that there is no threshold dose below which mutations do not occur.²⁻⁴

It is obvious that the operator as well as the patient is subject to somatic and gonadal exposures. Persons like dentists who are occupationally exposed to radiation may, however, be permitted to receive a slightly larger dose than the general population without influencing the overall mutation rate.

MEANS OF PROTECTION

Exposure of the patient, operator and non-dental personnel must be considered and effective means of protection must be devised and used. Dentists should be as well informed in this context as they are in the techniques of restorative dentistry.

Patient Protection.—The patient who is in the path of the primary beam receives the largest somatic and gonadal dose. This is not a recurring experience, however. Protection against the primary beam is ef-

fectured by restricting the diameter of the beam so that at film level it is just sufficient to cover the largest dental film. This procedure is called collimation and is achieved by inserting a lead ring of appropriate diameter in the beam before it leaves the apparatus. For dental applications a beam with a diameter of 2.75 inches at a distance of eight inches from the focal spot is adequate. This collimated beam imposes a more accurate technique on the operator. The patient benefits because the eyes, thyroid and other important tissues and organs receive less direct radiation. Moreover, both patient and operator receive substantially less scatter radiation.

The x-ray beam that emanates from the tube consists of individual rays of varying wave-lengths. Those of shorter wave-length, being more penetrating, reach the film and form an image. The longer rays have insufficient penetrability to reach the film. They are absorbed by intervening soft tissue. Thus they increase skin dosage without playing any part in making the radiographic image. They may be filtered off by passing the beam through a thickness of aluminum. This results in substantial reduction of skin dosage with little or no effect on the film image. The recommended thickness of aluminum varies with different machines and this information may be obtained from any dealer.

The effect of increasing the voltage applied to the tube is to increase the proportion of short wave-length radiation as well as the quantity of x-rays. Exposure time is thereby reduced and this has been used as an argument in favour of high kilovoltage techniques. Unfortunately, the problem of optimal kilovoltage is not so easily resolved, and until all the factors involved have been assessed it is not possible to suggest recommendations in respect of any one kilovoltage. Some of the factors to be considered are: (1) increased dosage to structures and organs some distance from the teeth; (2) effect of increased scatter radiation from the higher kilovoltages employed; (3) lessened contrast of the image and its effect on interpretive value; and (4) decreased exposure time relative to increased radiation output at higher kilovoltages.

Film manufacturers have made the biggest contribution to decreased exposure for the patient. Faster emulsions have been developed and slow speed films have been withdrawn from the market. The increase in speed has been made at the expense of grain size so that faster films are somewhat coarser or grainier. Because of their greater sensitivity they are much more susceptible to fog. Although some adjustment has been required by the dentist in interpreting this film, concern for the patient's welfare remains as the overriding consideration. The potential inherent in faster film may best be realized by accurate processing techniques with fresh solutions and full development.

Richards⁵ recently identified the plastic director cone on dental x-ray machines as a source of scatter or secondary radiation to the gonads. If this pointed cone were replaced by an open-end shielded cone there would be an almost 50 per cent reduction in gonadal irradiation.

The employment of faster films may require the utilization of exposure times so short that mechanical timers on older apparatus may not be accurate. In that event two courses of action are open: (1) reduction of milliamperage to a suitable level, remembering that so long as the product of milliamperage and time (MAS) remains constant the former may be reduced while the latter is correspondingly increased; or (2) replacement of the mechanical timer with a new electronic timer.

Most experts in radiation hygiene advocate the use of a lead apron to shield the gonads of persons in their reproductive years. California has mandatory legislation to this effect. However, some equally authoritative persons regard the employment of lead aprons as unnecessary when all other precautions are adequately observed.⁶ They point out that the gonadal dose for a full-mouth survey (14 films) is equivalent to less than two days' background radiation when all other precautions and safeguards are observed. They contend, moreover, that such an apron alarms the patient needlessly.

I consider the use of an apron as psychologically reassuring. Furthermore, no amount of gonadal irradiation is beneficial and maximum limits have been set

for exposure of the reproductive organs. In addition, not all dental x-ray machines are of the latest design. Consequently, employment of an apron that virtually reduces the dental gonadal contribution to zero is a logical requirement, especially for children and pregnant women.

Finally, the dentist must (1) keep the number of films at a level consistent with good dental practice; (2) employ techniques which eliminate the necessity for repeated exposures; and (3) have his equipment periodically tested for radiation leakage by competent technicians.

Protection for Operator.—Anything that reduces irradiation of the patient will benefit the operator. This is especially significant because the patient is only exposed infrequently whereas the operator may receive low levels of radiation over a prolonged period.

The first precaution for the operator is to avoid the primary beam and especially to avoid holding films for patients, regardless of circumstances. Although this safety measure has been advocated for a long time, some dentists honour its observance more in the breach than in the practice.

Richards⁷ has also determined the safest position for the operator during routine dental radiographic exposures. When the beam is directed at right angles to the sagittal plane, the operator receives the minimum amount of radiation when he is at right angles to the beam and directly behind the patient. When the beam is directed at right angles to the frontal plane the safest position varies with the kilovoltage employed. At 65 KVP the safest position is directly behind the tube, while at 90 KVP this position changes to one which is at 90 degrees to the beam and directly to one side or the other of the patient. Other factors to be considered in the avoidance of the maximum permissible dose (MPD) for the operator are his distance from the source and the workload. Inasmuch as the intensity varies inversely as the square of the distance, increasing the distance remains the best method of preventing radiation injury. If the operator maintains a distance of six feet from the patient's head under ordinary workloads

in the average dental office, regardless of his position relative to the beam and the patient's head, he will not approach the weekly MPD.

Protection of Other Persons.—No discussion of radiation protection is complete without reference to exposures received by receptionists, auxiliary personnel, persons in the waiting room and occupants of adjoining offices. If such persons were separated from an x-ray apparatus by only a lath and plaster partition, the accumulated dosages could easily exceed the MPD for a member of the general population. These people must not be exposed to such hazards and the dentist must arrange for suitable barriers in the walls, floor and ceiling. Information on shielding requirements is readily obtainable.⁸

DOSAGE

Radiation, though it cannot be detected by any of the senses, is quantitatively measurable by the minute electrical currents which it generates in air. The unit of measurement is the roentgen (r). It is customary to state the quantity in roentgens at a given position and designate the medium; for example, 1.1r at the tip of the cone in air.

The output of dental apparatus varies with the kilovolt peak (KVP), amount of filtration, milliamperage and the length of time the machine is energized. Individual models of the same manufacturer may show variations, but the output of most dental apparatus is in the neighbourhood of 1-2r per second at 65 KVP at the tip of the director cone in air. Of importance also is the amount of radiation absorbed by different tissues at different levels in the patient's body. The unit used to measure this absorbed dose is termed the rad. For purposes of dental radiology the rad and the roentgen may be considered equivalent.

To appreciate the doses delivered by dental radiographic procedures it is necessary to relate them to doses which have observable effects; that is, lethal doses and erythema doses. A further distinc-

tion must also be made between irradiation of the whole body and irradiation of a small restricted area as in dental radiography. Analogy can be made to the seriousness of a severe sunburn of the whole body and the relatively minor effects experienced when a small portion of skin is affected. A whole body dose of 1,000r results in certain death within 30 days. After an exposure to 400-500r there is a 50 per cent chance of survival together with clear-cut clinical symptoms, whereas a whole body dose of 50-100r is never fatal and rarely produces illness. Between these extremes lies the erythema dose. This ranges from 117r to 165r, depending on skin colour.⁹ Fair skinned individuals are more susceptible to radiation erythema as they are to sunburn. Richards' experiments were done on the skin of the flexor surface of the forearm of several volunteer university students, and he observed that 600 MAS (165r in air) produced erythema in three of four students. The minimum exposure required for erythema was 425 MAS (117r).

Taking into account that the skin of the face is less sensitive than that of the forearm and using this as a safety factor, Richards proposed 400 MAS (110r in air) as the MPD consistent with the avoidance of erythema in any two week period. This MPD does not make allowance for gonadal exposure. Furthermore, these exposures are given to a specific area whose diameter should not exceed 2.75 inches.

By combining the results of similar experimental work⁷ with observations on the recovery rate of skin,³ it is possible to formulate an MPD in relation to somatic exposure. Poppel et al¹⁰ suggest that any part of the body receiving an exposure of 100r should not be re-exposed for three weeks; parts exposed to 60-100r should not be re-exposed for two weeks; parts exposed to between 30r and 60r should not be re-exposed for one week; dosages below 30r may be repeated daily as long as the exposures in total do not exceed 100r per week. These recommendations were suggested in 1951 and the likelihood of a downward revision would not be surprising.

It follows that a dentist, using a properly collimated beam and properly shielded equipment with an output of 1.1r

per second at the tip of the cone in air at 65 KVP, could theoretically make 18 exposures a day of the same area every working day for a five day week and not exceed the somatic MPD ($1.1 \times 18 \times 5 = 99r$). This practice is not recommended but cited merely to demonstrate the amount of radiation delivered to a single area of skin during exposure of a single dental film relative to the maximum permissible skin dose.

Whereas somatic doses were formerly considered significant, the dosage received by the reproductive organs is now regarded as of paramount importance.

The quantity of background radiation received by the gonads during the first 30 years of life—the average reproductive period—is estimated to be 3r.¹¹

This exposure varies to some extent in different localities, depending on the concentration of unstable elements in the soil and the elevation above sea level. The MPD which the gonads may receive from man-made sources has been arbitrarily set at an additional amount equal to background, that is 3r in 30 years or 1r in 10 years. This is the equivalent of 100mr per year (milliroentgen = one-thousandth of a roentgen). Experience has shown that maximum limits tend to be revised downward as knowledge of radiation effects increases.

Richards¹² also investigated gonadal dosage resulting from dental radiography and observed a definite relationship between the dose delivered to the face and that received by the gonads. He determined that for every roentgen delivered to the face, 0.0001r is received by the gonads of a male patient, and 0.00002r by the gonads of a female patient.

Richards⁵ latest results show that 14 exposures using ultra-speed film, 65 KVP, 10 MAS, and a short open-ended shielded cone with 0.5 mm. of aluminum filtration produce a total gonadal dose of 0.55mr. Of special interest to the proponents of higher kilovoltage techniques is the fact that, under similar conditions except for kilovoltage, the gonadal dose is 20 per cent greater at 90 KVP. To place dental radiography in proper perspective it should also be noted that daily background gonadal dosage is 0.30mr and this would be increased by 75 per cent

(0.225mr per day) at elevations of 5,000 feet above sea level (to 0.525mr). Yet there is no mass exodus from cities such as Denver, Colorado; nor is there any reluctance about seeking higher altitudes in the pursuit of skiing — altitudes where additional gonadal doses during a three day stay would more than equal those received from one full-mouth radiographic survey.

Up to this point we have discussed dosage from an individual standpoint, but geneticists tend to view the effects of radiation on the population as a whole. When seen in this light it becomes apparent that a small segment of the population which is occupationally exposed to radiation may be allowed a slightly higher exposure without affecting to any extent the mutation rate of the population as a whole and without anticipating immediate or delayed somatic injury. Dentists fall into this group. The MPD for such persons working with x-radiation not in excess of 200 KV has been set at 100mr per week. Let it be said at once that any dentist receiving this dosage would be negligent or ignorant in the proper use of dental x-ray equipment. This amount vastly exceeds what a dentist should receive and even dosages approaching 20mr per week should be investigated and reduced.

MEANS OF DETECTION

The detection of radiation depends on the observation of secondary effects, such as relative blackening of a photographic emulsion, relative fluorescence when radiation falls on certain chemicals, or the measurement of minute electrical currents which it produces in air.

Radiation engendered electrical currents are measured by using a simple electrometer in an ionization chamber. This is basically a closed vessel containing air. An electric charge separates the two arms of the electrometer. As radiation falls on the device the charge is neutralized and the two arms come together. A calibrated scale placed behind the arms measures the amount of charge lost. These dosimeters can be made as small

as a fountain pen and thus readily carried in a pocket. They can be read immediately, but they are relatively expensive.

A less costly but less sensitive method of measuring radiation exposure is to observe the relative blackening of a photographic emulsion. A film badge is worn on clothing for a predetermined interval, processed and compared with a similar film which has been exposed to a known amount of radiation. The degree of blackening is measured by an optical instrument called a photo-densitometer. Although dosages are not immediately known, when they do become available and are reported a permanent record is formed. This service is available through the Department of National Health and Welfare at a nominal cost.

SIGNIFICANCE OF FALLOUT

The advent of nuclear testing and subsequent fallout has increased the level of natural background radiation as well as the hazard of ingesting radioactive material. Increased background radiation magnifies the amount of radiation directed to the reproductive organs. Fears have also been expressed that excessive concentrations of radioactive materials may lead to the development of malignant changes in bone.

Edward Teller¹³ has reassured us in this regard. He argues that the current level of fallout is less than one-tenth of natural background radiation. This is less than ten thousand times the amount which has been statistically shown to be harmful somatically. Teller also contrasts people who live at sea level with the citizens of Denver who live 5,000 feet above sea level. He points out that people in Denver are exposed to additional cosmic radiation which exceeds the current level of fallout; yet no harmful effects have been attributed to living at these higher altitudes. Noteworthy, also, is the fact that persons who live in brick houses receive ten times the amount of radiation they receive from fallout.

The minute radiation from fallout may cause mutations, but so also, among other things, may an increased temperature.⁴

Teller estimates that the wearing of trousers causes one hundred times as many mutations as fallout; yet there is no trend in favour of the kilt. He sums up his argument for sanity in the matter of fallout by saying that mutations are a natural process and that fallout which enhances this process by a fraction of 1 per cent should not give rise to undue alarm.

Concern about possible health hazards associated with radioactive fallout has led to investigation of the deposition of radioactive substances in man. Hunt,¹⁴ of Toronto, has studied the level of strontium⁹⁰, a component of fallout, in the deciduous teeth of children in various regions of Canada. Teeth are an ideal vehicle for this study because they are easier to obtain than bone samples. Moreover, strontium⁹⁰ is deposited during tooth development in a relatively short space of time. Once it is deposited, there is little metabolic exchange. Strontium⁹⁰ has a long half life and, because it is deposited and retained in bones and teeth, it could become important in leukaemogenesis if the body burden reached a high level. Based on these studies, the amount of

ingested radioactive material is well below the values considered dangerous.

*Associate, Department of Radiology, Faculty of Dentistry, University of Toronto.

1. Wuehrmann, A. H. Radiation protection and dentistry. St. Louis, Mosby, 1960.
2. Cohen, B. and Stanford, R. W. Review of the dangers of radiation in dentistry. Internat. D. J. 10:368, 1960.
3. World Health Organization Technical Report Series 306. Public health and the medical use of ionizing radiation: fifth report of the Expert Committee on Radiation. Geneva, World Health Organization, 1965.
4. World Health Organization Technical Report Series No. 248. Radiation hazards in perspective: third report of the Expert Committee on Radiation. Geneva, World Health Organization, 1962.
5. Richards, A. G. New method for reduction of gonadal irradiation of dental patients. J.A.D.A. 65:1, 1962.
6. Idem. Roentgen-ray doses in dental roentgenography. J.A.D.A. 56:351, 1958.
7. Idem. Secondary radiation and the dentist. J.A.D.A. 57:31, 1958.
8. Idem. Shielding requirements for dental installations. J.A.D.A. 64:788, 1962.
9. Idem. Roentgen-ray radiation and the dental patient. J.A.D.A. 54:476, 1957.
10. Poppel, M. H., Sorrentino, J. and Jacobson, H. G. Personal diary of radiation dosage: plea for a standardized system. J.A.M.A. 147:630, 1951.
11. Worth, H. M. Principles and practice of oral radiologic interpretation. Chicago, Year Book Medical Publishers, 1963.
12. Richards, A. G., Nelsen, R. J., Fitzgerald, G. M., Wald, S. S. and Spangenberger, H. D., Jr. X-ray protection in the dental office. J.A.D.A. 56:514, 1958.
13. Teller, Edward. Radiation hazard. Ann. Den. 22:94, 1963.
14. Hunt, A. M. Personal communication.

57 Bloor Street West

Dental Specialists in Canada • In January 1966, there were 273 specialists in the five specialties recognized by the Canadian Dental Association: 66 oral surgeons, 145 orthodontists, 11 paedodontists, 46 periodontists and five prosthodontists. Specialties are certifiable in all provinces except Newfoundland. Some provinces certify other specialties as well.—CDA Bureau of Economic Research.

Three common methods of periapical radiography

H. M. Eaton,* DDS, Halifax, Nova Scotia

Dimensional distortion and superimposition of the parts is an inherent risk with the short cone bisecting angle technique of intra-oral radiography. This distortion is reduced by the long cone bisecting angle technique and eliminated when the long cone paralleling technique is used. Special instruments are available to facilitate the parallel placement and retention of the film packet, and to indicate the correct angulation of the x-ray beam when the paralleling technique is used.

■
La distorsion et la superposition sont des inconvénients inhérents à la technique radiologique intra-orale lorsqu'on emploie la technique de la bissectrice avec une courte distance anode-film. Cette distorsion est diminuée lorsqu'on emploie la technique de la bissectrice avec une distance anode-film plus longue. Elle est éliminée complètement lorsqu'on emploie une technique de parallélisme avec une distance anode-film très longue. L'auteur décrit des instruments qui peuvent faciliter l'application de cette dernière technique.

This article deals with the principles employed in three common methods of periapical radiography: the short cone bisecting angle technique, long cone bisecting angle technique, and long cone paralleling technique. Though each has its advantages and disadvantages, diagnostic radiographs can be produced by each method.

The short cone bisecting angle technique is based on the principle of projecting the central beam of radiation perpendicular to the imaginary plane which bisects the angle formed by the plane of the film packet and the long axes of the teeth under examination.¹ A short cone is used in this technique. This results in a target-film distance (TFD) of eight inches. This measurement is also sometimes referred to as the focal-film distance (FFD). Because the optimum field of radiation at the skin is 2.75 inches in diameter, the central beam should be directed to the geometric centre of the film packet and pass through the teeth midway along the length of the roots. With normally aligned maxillary teeth, this is done by aligning the nose of the x-ray cone with the ala-tragus line and pointing it midway along the mesiodistal length of the film packet. In the lower jaw the point of application is approximately ¼-½ inch above the lower border of the mandible

and half-way along the mesiodistal length of the film packet. The foregoing instructions merely relate the field of radiation to the placement of the film packet and thus prevent cone cutting. The required vertical and horizontal angulation of the x-ray tube will reduce distortion to a minimum. If care is used with this technique, satisfactory radiographs can be obtained with relative ease. Modifications may be necessary for teeth that deviate from their normal position in the jaws.

In the long cone bisecting angle technique, a cylindrical cone is added to the head of the x-ray machine. Such cones are obtainable from manufacturers of x-ray machines. The added cone increases the TFD from eight to 16 inches. This has the effect of reducing linear distortion of the radiographic image of the

teeth, because the longer the target-object distance (focal spot to teeth) the more nearly parallel are the x-rays.

A TFD of 16-20 inches is practical in modern day practice. A longer TFD, while further minimizing distortion, is cumbersome for routine use. Moreover, the intensity of radiation varies inversely as the square of this distance. Therefore the patient would be subjected to an undesirable amount of radiation. This can, of course, be offset to some extent by appropriate adjustments of milliamperage, kilovoltage, film speed and development time. But a TFD of 16 inches is usually the maximum in general use today.

The formula:

$$\frac{\text{Original MAS}}{\text{New MAS}} = \frac{\text{Original TFD}^2}{\text{New TFD}^2}$$

permits one to determine the exposure time for required changes in either TFD or milliamperage seconds; and from the latter, since MAS is the product of milliamperes and seconds, it follows that either milliamperes or seconds can be derived. Tables are also available for determining the exposure time to be used when it is desirable to alter the kilovoltage.

Although both short cone and long cone bisecting angle techniques produce acceptable radiographs, the following limitations must be kept in mind:

FIGURE 1 Principle of the bisecting angle technique. (Updegrave, W.J. New horizons in periapical radiography. Rinn Corporation.)

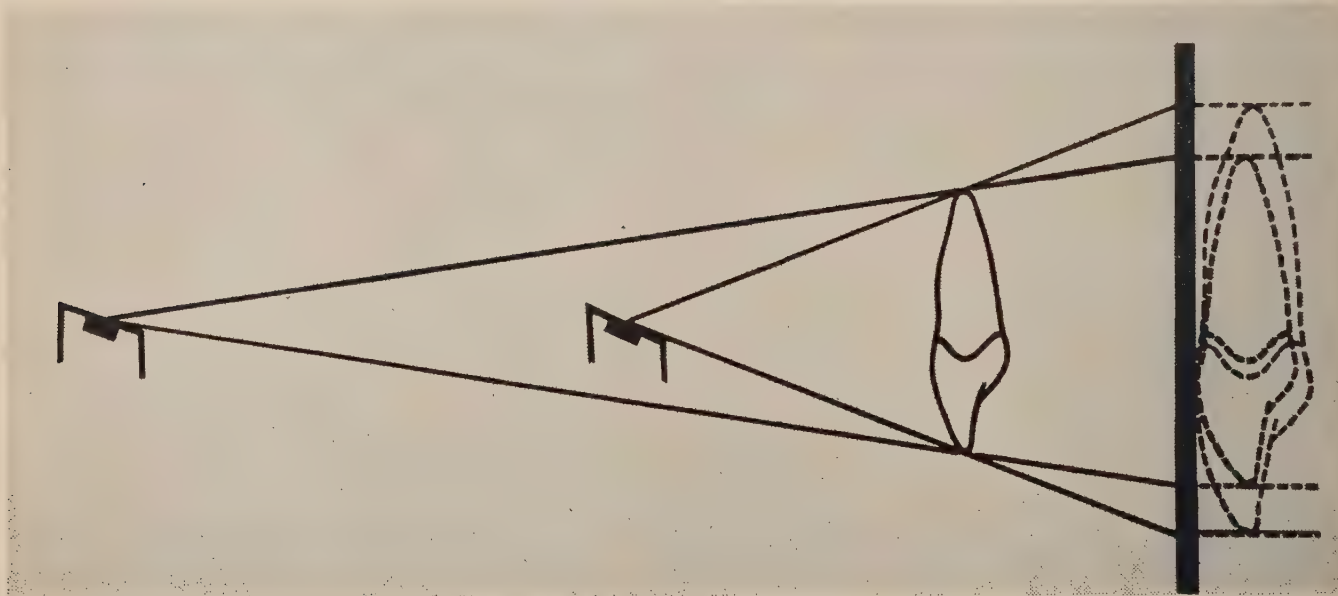
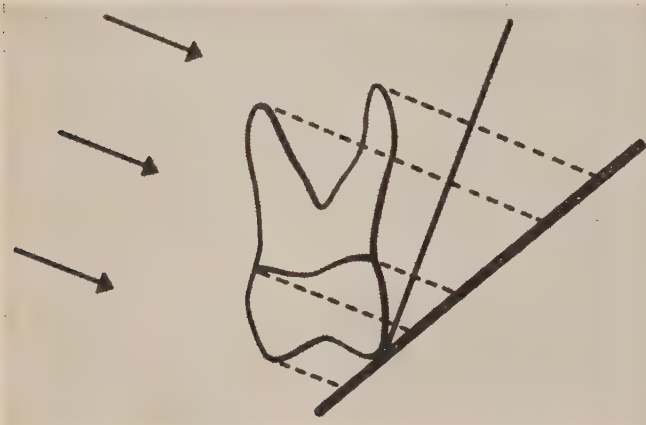


FIGURE 2 Comparison of the linear image produced by the 8 inch and 16 inch target-film distance. (Updegrave, W.J. New horizons in periapical radiography. Rinn Corporation.)

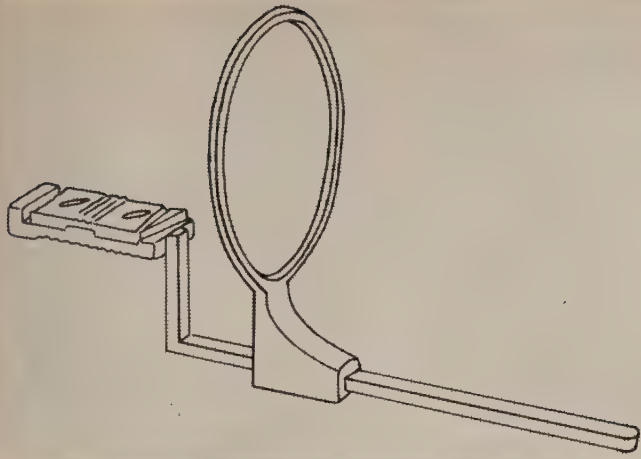


FIGURE 3 Instrument for anterior teeth used in the long cone paralleling technique. (Updegrave, W.J. New horizons in periapical radiography. Rinn Corporation.)

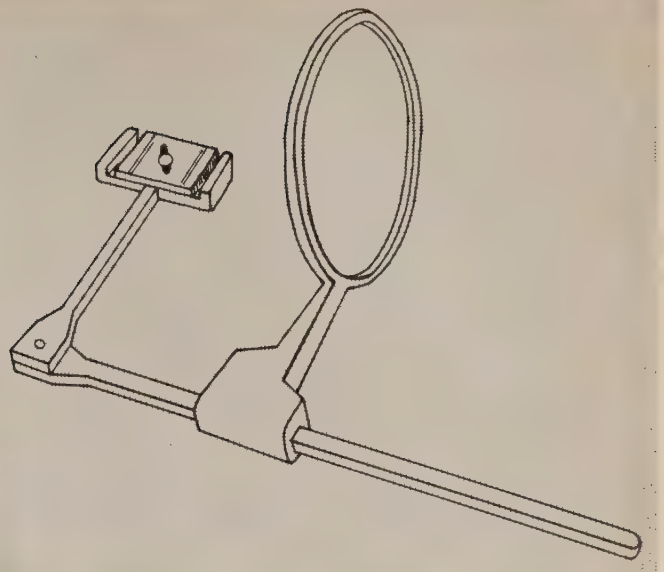


FIGURE 4 Instrument for posterior teeth used in the long cone paralleling technique. (Updegrave, W.J. New horizons in periapical radiography. Rinn Corporation.)



FIGURE 5 Radiograph produced by the short cone bisecting angle technique. (Updegrave, W.J. New horizons in periapical radiography. Rinn Corporation.)



FIGURE 6 Radiograph of same area as in Figure 5, but produced by the long cone paralleling technique. Note that the anatomical structures which interfere with a diagnostic view of the roots of both molars in Figure 5 are shown clearly in this view. Note also the crestal bone in this view as compared with Figure 5. (Updegrave, W.J. New horizons in periapical radiography. Rinn Corporation.)

(a) Since the film packet in most cases is not parallel to the long axes of the teeth, those parts of the teeth that are most distant from the film—the root apices, for example—are registered more faintly because of divergence of the x-rays. This is not usually serious in single rooted teeth.

(b) However, in the maxillary molar area (particularly the first molar) there may be as many as four planes—that of the buccal roots, that of the palatal root, that of the film packet and the imaginary plane bisecting the angle formed between the film packet and the mean longitudinal axis of the first molar. When buccal and lingual roots occupy separate non-parallel planes, it is obviously impossible to project the true linear length of these structures onto a third plane (that of the film packet) which in turn is not parallel to either of the preceding planes. The problem, here, is that of attempting to project a three dimensional object onto a two dimensional film. This explains why radiographs of the maxillary first, and sometimes second, molar frequently reveal a discrepancy between buccal and lingual root length. The principles involved in this limitation and the resultant radiograph are shown in Figures 1 and 2.

The long cone paralleling technique introduces a new principle, that of placing the film packet parallel to the mean long

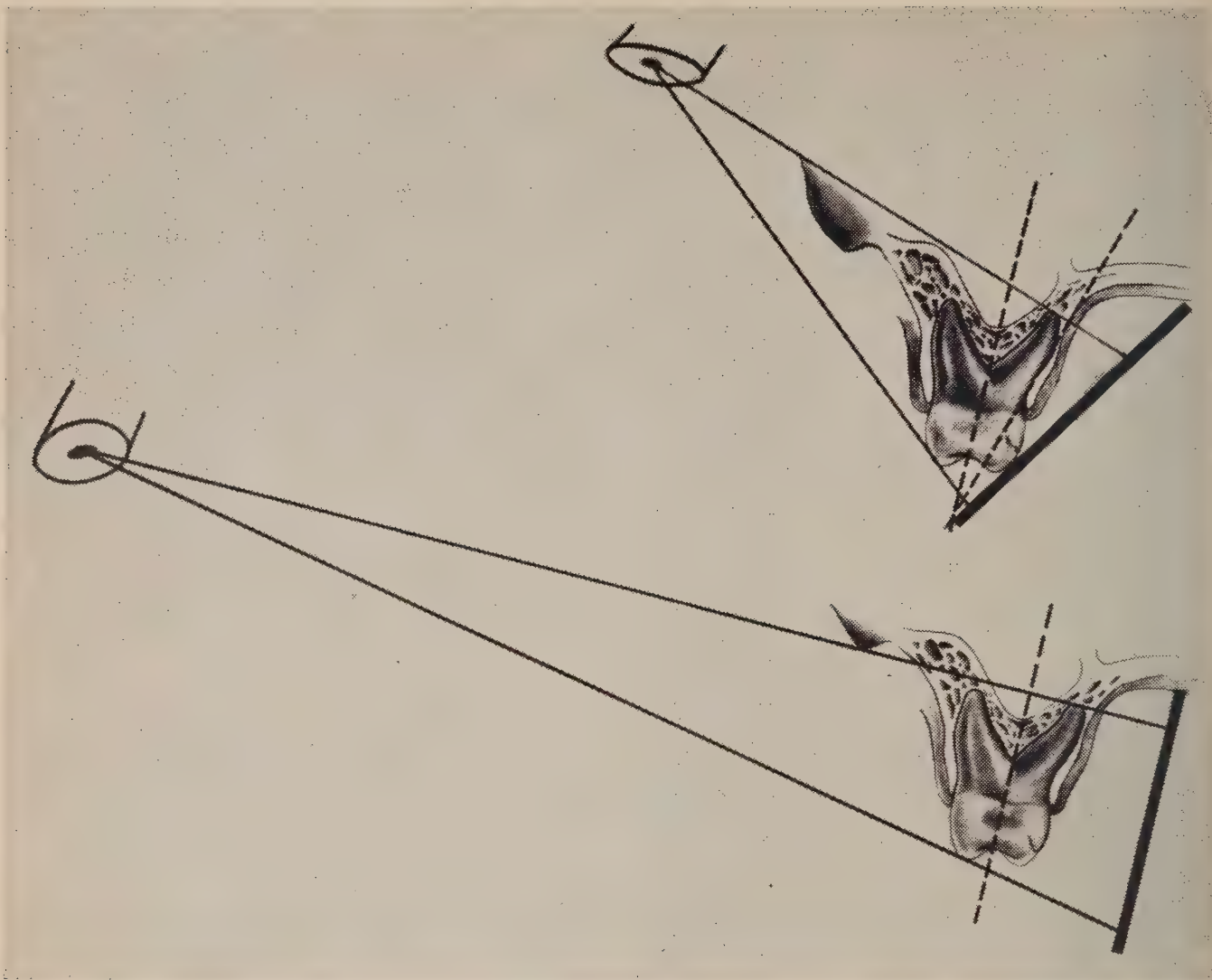


FIGURE 7 Schematic comparison of the short cone bisecting angle and long cone paralleling techniques. (Updegrave, W.J. *New horizons in periapical radiography*. Rinn Corporation.)

axes of the teeth and directing the radiation perpendicular to both the teeth and the film.

This method, developed by McCormack and improved by Fitzgerald, is sometimes termed the McCormack or Fitzgerald technique. Additional improvements in procedure and instrumentation have been devised by Updegrave.^{2,3}

To parallel film and teeth in the anterior maxillary region, the film packet must be placed well lingual of the anterior teeth in order to take advantage of the maximum height of the palatal vault. Although the film used is narrower than standard periapical film, the film packet is usually placed opposite the bicuspid teeth. For posterior teeth the packet is placed in the sagittal plane at the midline, or sometimes even further away

from the teeth. The positioning for the mandibular teeth follows the same principle. The film packet is placed so as to parallel the long axes of the teeth under examination. In the mandibular molar area the film packet is parallel when it is close to the lingual surfaces of these teeth.

The requirement of parallelism between film and teeth results in a comparatively long object (tooth)-film distance. Therefore a 16 or 20 inch target-film distance is necessary in order to reduce linear and dimensional distortion as much as possible. It is particularly noteworthy that this technique permits one to portray the bucco-lingual dimension of the teeth with much greater accuracy than with either of the bisecting angle techniques. In other words, dimensional distortion is greatly reduced by the paralleling principle.

A set of instruments designed specifically to maintain the film packet parallel to the mean long axes of the teeth is available (Figures 3 and 4). Narrow (adult) periapical film is essential in the anterior part of the maxilla and mandible. Conventional periapical film is used for the posterior teeth.

A comparison of the same posterior area radiographed by the short cone bisecting angle technique and the long cone paralleling technique is depicted in Figures 5-7.

In the paralleling technique, a prominent torus palatinus or a low vault may hinder placement of the upper edge of the film packet so that it will include the apices of the teeth. This difficulty can usually be overcome if the x-ray tube is set at a vertical angle of $+15$ degrees. Although this departs from the concept of projecting the rays perpendicular to the teeth and to the film packet, the change of angulation does not seriously impair the diagnostic value of the radiograph.

The practitioner trained in the use of the bisecting angle technique may have some initial difficulty in producing good radiographs by the long cone paralleling method. However, after a little practice with film placement and retention, he can quite readily adapt himself to this procedure. The results obtainable will justify the effort.

Instructors in dental radiology usually advocate the technique in which they are most competent or which produces the most satisfactory results in the hands of their students. Dentists should, nevertheless, become familiar with alternative methods and then adopt the one which gives them the best results. The important point is the production of satisfactory radiographs; not the preference for a particular technique.

Proponents of the long cone paralleling

technique claim that the bisecting angle method produces radiographs of questionable value because both linear and dimensional distortion are present. While this may often be true, the amount of distortion, in capable hands, is not sufficiently serious to impair diagnostic quality. Partisans of the paralleling technique further claim that it is difficult to place and retain the packets correctly. But those who are proficient in the use of the bisecting angle technique have no real difficulties in this respect. As to judging or estimating the bisecting plane, one can become quite expert in this matter and thus eliminate any serious difficulty from this aspect of the technique.

On the other hand, while the long cone paralleling technique does reduce linear and dimensional distortion, proper film packet placement and retention is sometimes difficult. A set of instruments designed by Updegrave can assist with this problem.⁴ They replace the more or less makeshift armamentarium used in the past. They also eliminate the required head positions and the vertical and horizontal angulation so necessary in the bisecting angle technique. Film placement, retention and vertical and horizontal angles of projection are automatically accommodated when these instruments are correctly used. Head position can also be disregarded. Furthermore, such anatomical superimpositions attributable to the maxillary sinus and incisive canal or fossa, as well as many pathological conditions are shown in their true relation to the adjacent dental structures.

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1. McCall, J. O. and Wald, S. S. Clinical dental roentgenology; technic and interpretation. Ed. 4. Philadelphia, Saunders, 1957.
2. Updegrave, W. J. Higher fidelity in intra-oral roentgenography. J.A.D.A. 62:1, 1961.
3. Idem. Simplifying and improving intraoral dental roentgenography. Oral Surg., Oral Med. & Oral Path. 12:704, 1959.
4. Idem. Personal communications.

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Current status of panoramic radiography

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Significant diagnostic information can be obtained from a panoramic radiograph which requires appreciably less exposure time and less complicated processing than a full survey of periapical radiographs. The panoramic technique is useful for a survey type of examination, but it suffers from distortion and lack of detail in the resultant radiographs. Consequently, panoramic radiographs do not eliminate a residual need for radiographs procured from regular equipment.

La radiographie panoramique peut fournir de précieuses indications pour établir un diagnostic. Elle demande également un temps d'exposition beaucoup plus court et une manipulation moins compliquée qu'une série de radiographies périapicales. La technique panoramique convient pour les examens d'ensemble mais ses films sont déformés et manquent de précision, elles ne peuvent donc pas remplacer complètement les radiographies que fournissent les appareils habituels.

There have been many recent advances in oral radiographic technique. Notable among these is the development and use of panoramic radiography.

For the last 22 years the medical profession has been interested in tomography, also known as laminography, planigraphy and stratigraphy. The term tomograph is derived from *τομή*-cutting, and *γραφή*-to write. This is a device for taking sectional radiographs. By giving the x-ray tube a curvilinear motion during exposure synchronous with the recording plate but in the opposite direction, the shadow of the selected plane remains sta-

tionary on the moving film while the shadows of all other planes have a relative displacement on the film and are therefore obliterated or blurred. Tomography is a means of showing radiographically a thin layer in a depth of tissue that is free from unwanted shadows of superimposed structures. It was first used in chest and skull films but now is applied throughout the body.

This technique was applied to dental areas about 15 years ago when Paatero of Finland commenced investigations into an apparatus and technique for making tomographs of dental arches. He worked

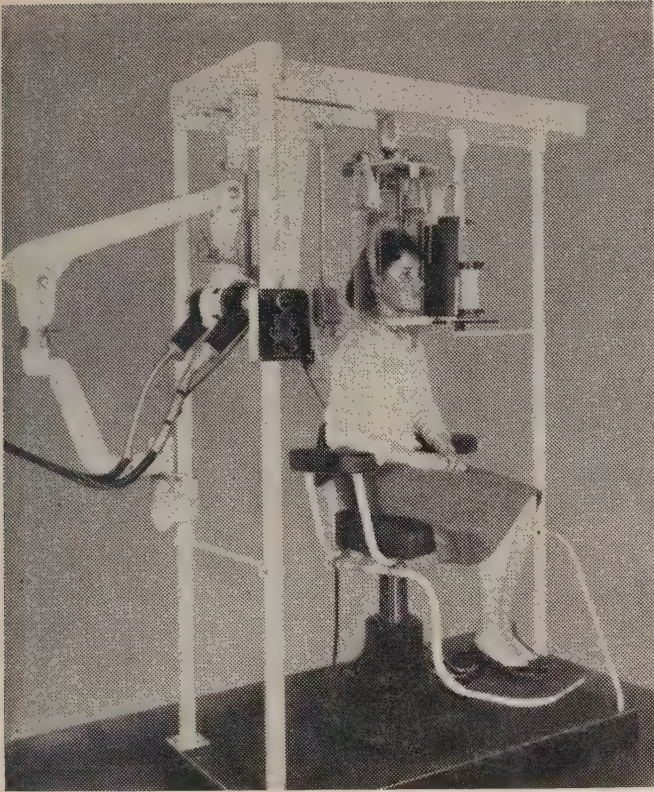


FIGURE 1 Rotagraph. (Blackman, Sydney and Poyton, H.G. A manual of dental and oral radiography. Bristol, Wright, 1963.)

in his own country and at the University of Washington in Seattle.¹⁻³ Hudson, Kum-pula, Dickson and Nelsen,⁴⁻⁷ working at the United States National Bureau of Standards, studied the problem from a slightly different approach. Ott of Switzerland and Blackman of England^{8,9} have also given attention to this particular technique and developed a further type of apparatus.

The research to date has resulted in four main types of apparatus. The present techniques may undergo further modification and it seems likely that new techniques will be introduced as time goes by. Information on this subject has been published in two recent articles by Updegrave¹⁰ and Graber.¹¹ Panoramic radiography was also the subject of a workshop seminar organized under the auspices of the American Academy of Oral Roentgenology, in Chicago February 26, 1966.

The four procedures presently in use are exemplified by the Rotagraph, Panorex, Orthopantomograph and Panoramix or Panograph machines.

Rotagraph.—This uses the principle of curved surface tomography in which the

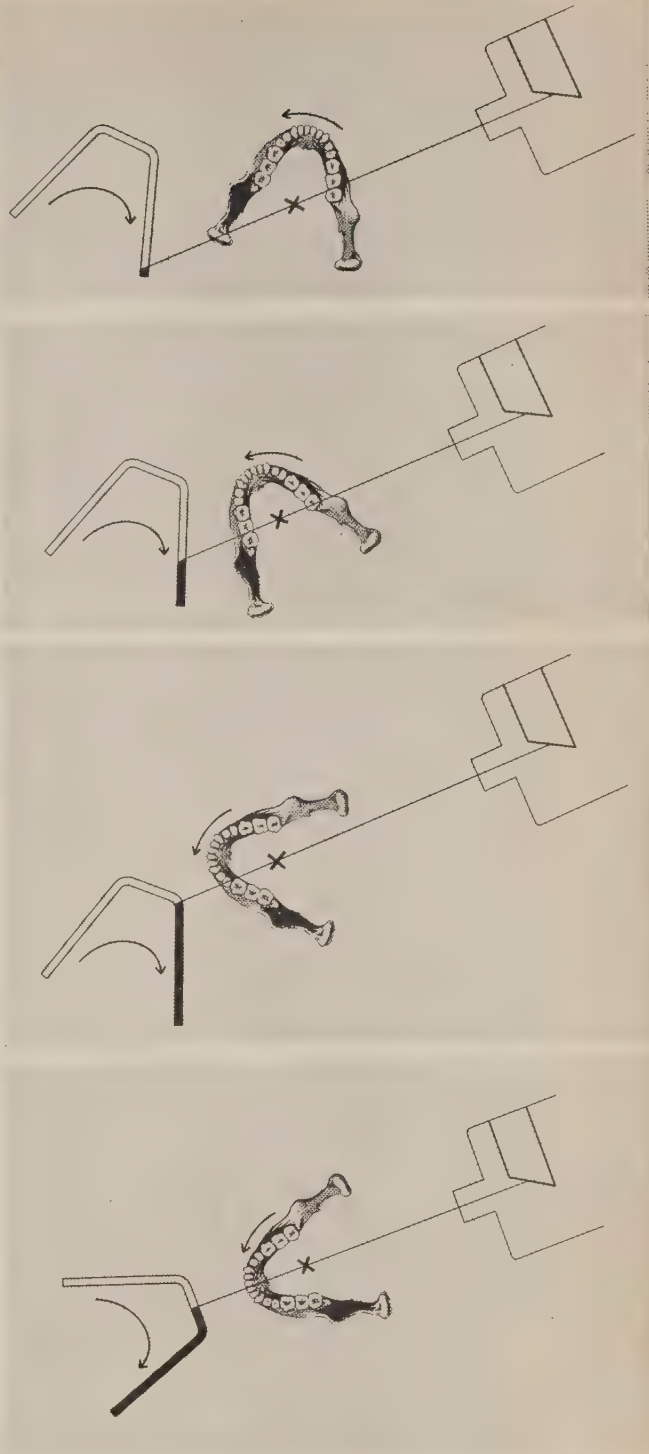


FIGURE 2 Rotagraphic principle. X-ray source is stationary. Patient and film rotate. Centre of rotational axis is at X. (Updegrave, W.J. D. Radiog. & Photog. 36:75, 1963.)

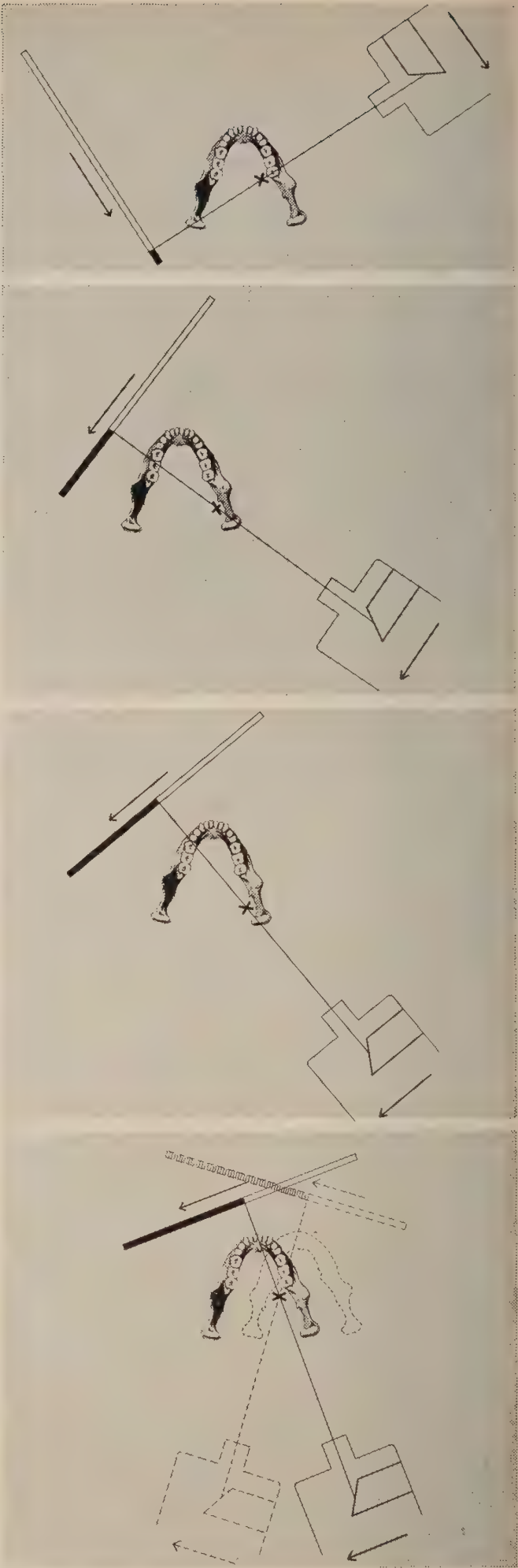
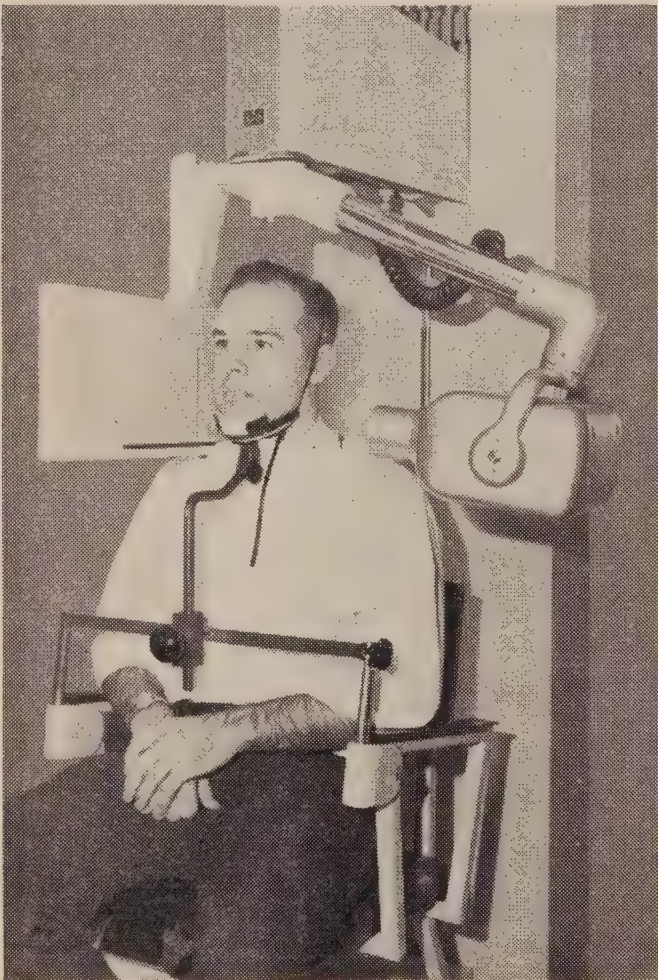
patient and the film rotate in a synchronized manner in opposite directions. The x-ray apparatus is stationary. A well defined image of the object is obtained by projecting a narrow beam through the moving dental area onto a film shaped in a reverse form to the dental arch and moving at the same rate in a reverse direction (Figures 1 and 2). Paatero's and

FIGURE 4 (r.) Panorex principle. X-ray source and film move. Patient and chair shift laterally at midpoint thus shifting the rotational axis at X. (Updegrave, W.J. D. Radiog. & Photog. 36:75, 1963.)

Blackman's investigations formed the basis for the Rotagraph.

Panorex.—Here, the principle of tomography is again used, but this time the film is held in a flat plane, the patient's head being stabilized in a modified cephalostat. The x-ray source and the film move in a synchronized fixed track pattern using two rotational centres. One side of the face is first exposed from one rotational centre. Then follows a 1½ inch lateral shift of the patient as the head of the x-ray tube and film continue to ro-

FIGURE 3 Panorex. (Updegrave, W.J. D. Radiog. & Photog. 36:75, 1963.)



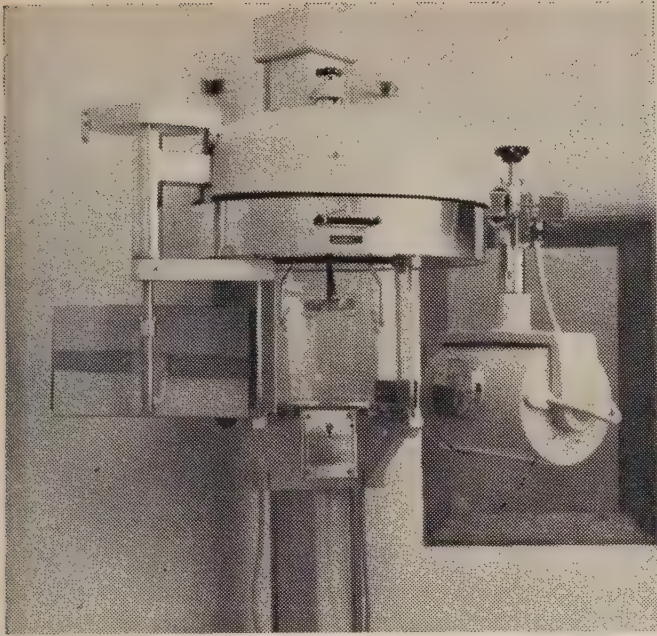


FIGURE 5 Orthopantomograph.

tate, thereby establishing a similar rotational centre for the opposite side of the face (Figures 3 and 4). A cam, shaped to the outline of the dental arch, guides the x-ray tube head and film. A modified cam is used for children where the arch size is markedly smaller. The developed film shows a blank area approximately 1½ inches wide and a duplication of right and left central incisors. The film must therefore be sectioned at two points and the matched halves properly orientated and joined. The Panorex resulted from research done by Hudson, Kumpula and Dickson.

Orthopantomograph.—This machine uses the same principle as the Rotagraph and Panorex but has a third rotational axis for the anterior arch segment. The patient's head is fixed in a type of cephalostat and the narrow beam is projected first through the condyles and lateral arch segment on one side to about the bicuspid area. The axis is then changed by a track or guide that is formed to approximate the anterior segment from cuspid to cuspid. The third adjustment of the tube-travel accommodates the opposite bicuspid-molar and condyle segment (Figures 5 and 6). The film is in a flexible cassette that is adapted to a

curved holder. This apparatus, a modification of an earlier machine developed by Paatero, is manufactured in Finland.

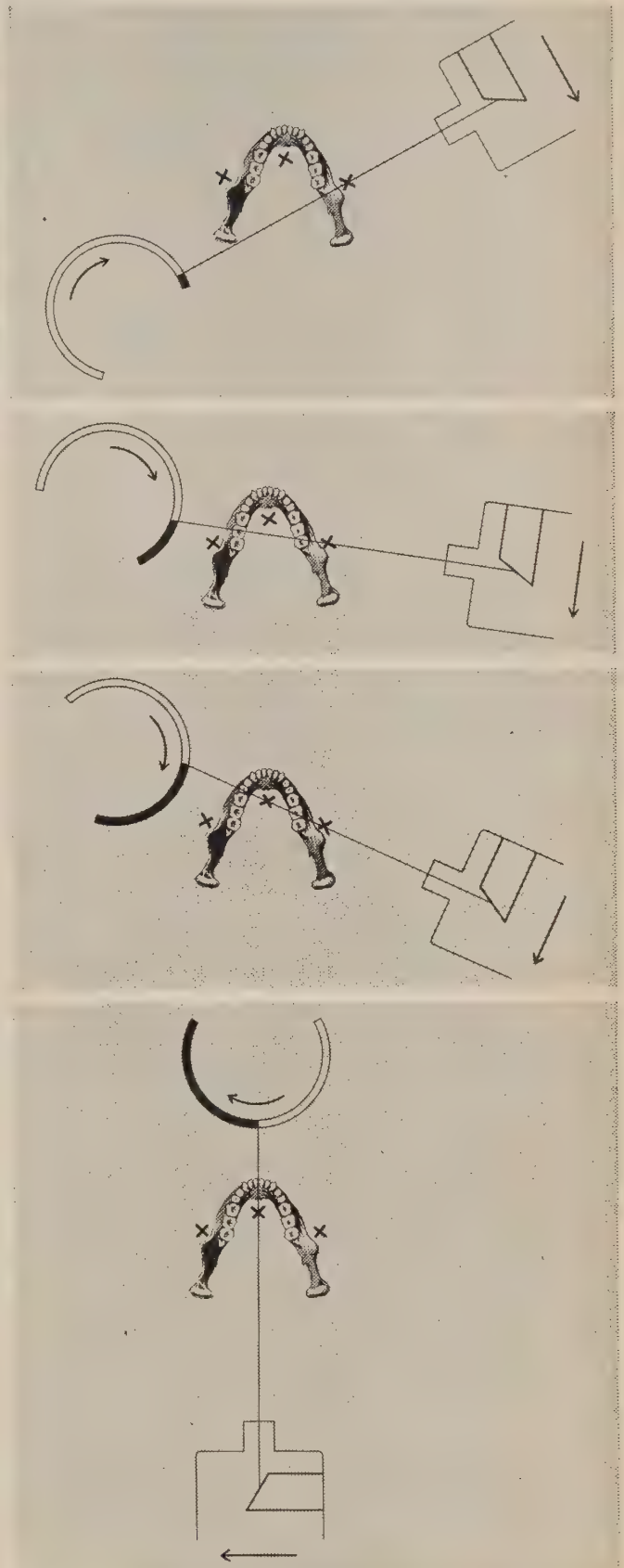


FIGURE 6 Orthopantomograph principle. X-ray source and film move. Patient is stationary. Rotational axis shifts to three positions. Centres of rotational axis are shown by X. (Updegrave, W.J. D. Radiog. & Photog. 36:75, 1963.)

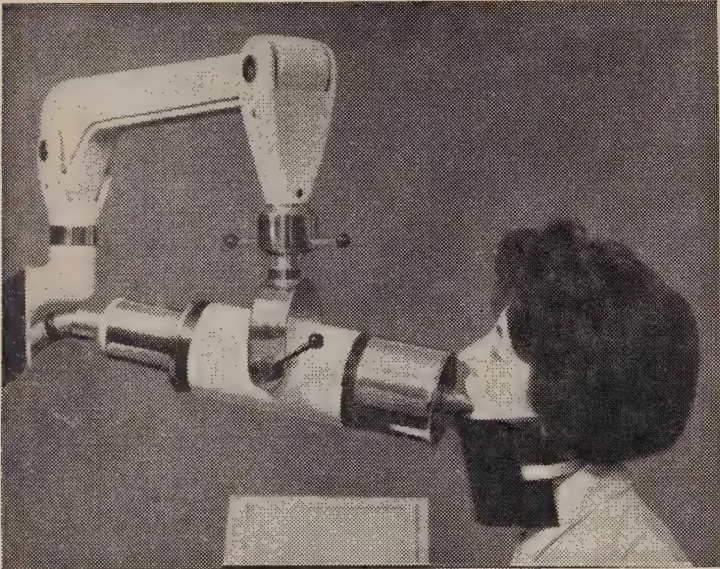


FIGURE 7 Panoramix. (Blackman, Sydney and Poyton, H.G. A manual of dental and oral radiography. Bristol, Wright, 1963.)

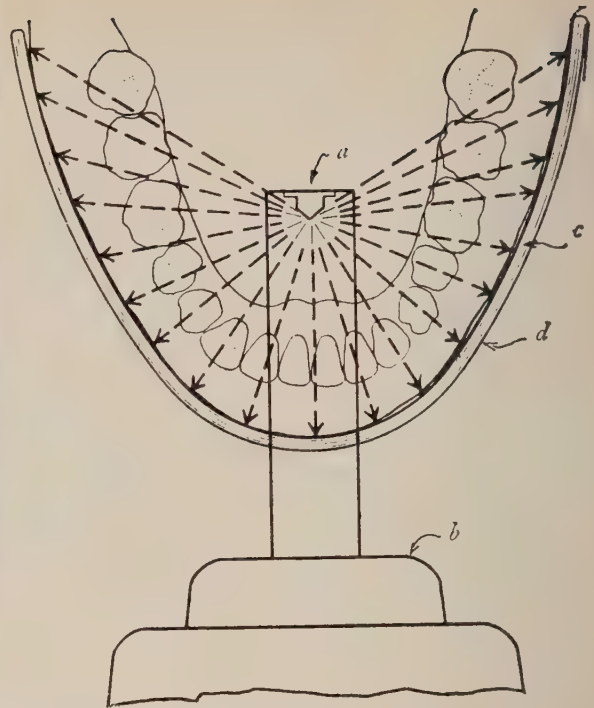


FIGURE 8 Panoramix principle. X - ray source and patient are stationary. Anode source of x-ray at (a); film at (c). (Blackman, Sydney and Poyton, H.G. A manual of dental and oral radiography. Bristol, Wright, 1963.)

Panoramix or Panograph.—This apparatus uses an entirely different principle. Here, a specially designed anode rod extension is placed within the oral cavity. The film is placed and adapted around the skin of the face opposite the dental arches. This curved film is briefly exposed to x-rays emanating from within the mouth and passing through the mandibular or maxillary structures (Figures 7 and 8). This procedure was developed by Ott of Switzerland and Blackman of England.

COMMENTS AND SUMMARY

The panoramic procedure is not intended to replace periapical, interproximal or lateral jaw radiographs. Its principal shortcomings are these:

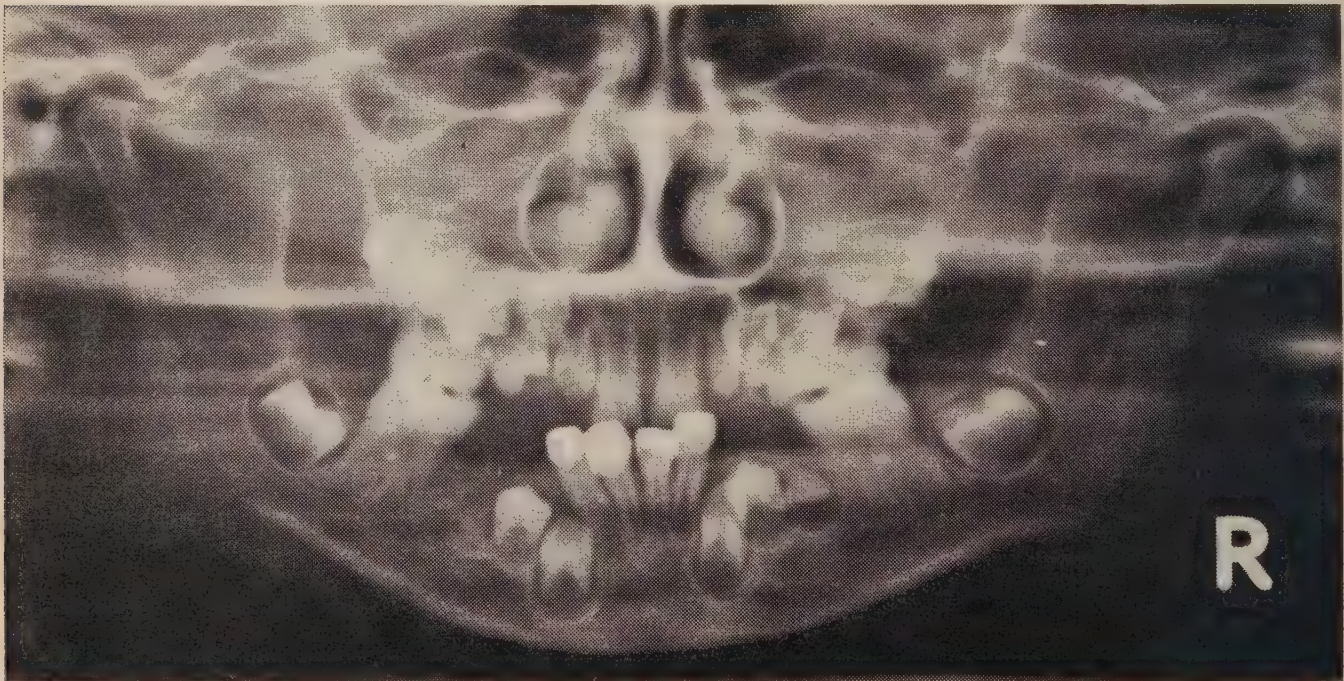


FIGURE 9 Panoramic radiograph produced by the Rotagraph. (Updegrave, W.J. D. Radiog. & Photog. 36:75, 1963.)

1. Although it is valuable for a survey type of examination, the distortion, magnification and lack of detail make panoramic radiography inadequate for purposes of a final interpretation without accompanying radiographs procured from regular equipment.

2. It is difficult to obtain clear temporomandibular joint lateral jaw radiographs without the use of a metal grid, such as a Bucky diaphragm.

3. Panoramic radiographs of the skull display many marked anatomical distortions.

As far as radiation hazards are concerned, the panoramic techniques seem well within the limits of acceptance. The delivered dosage appears to be considerably less than for a full survey of periapical radiographs.

The panoramic film can be exposed in appreciably less time—3-5 minutes as compared with 15-20 minutes for a complete periapical survey. Processing is less complicated and the panoramic radiograph does not require the orientation and mounting necessary in a periapical



FIGURE 10 Panoramic radiograph produced by the Panorex.

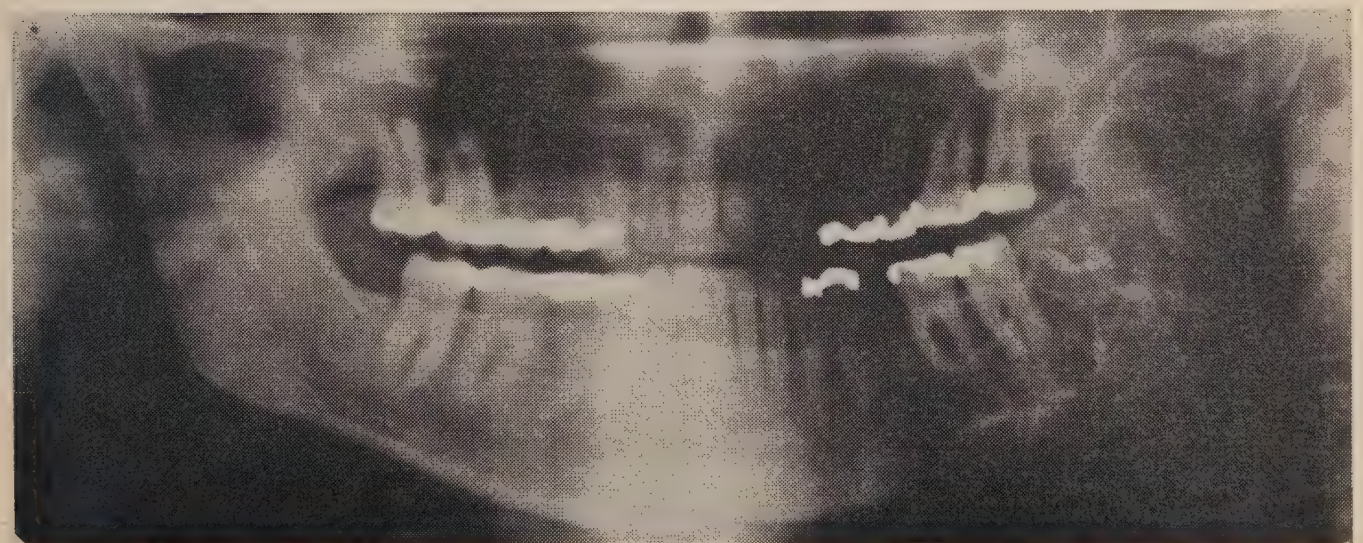


FIGURE 11 Panoramic radiograph produced by the Orthopantomograph. Evidence of fibrous dysplasia in left body and ramus of mandible. Also note radiolucent area in right coronoid process.

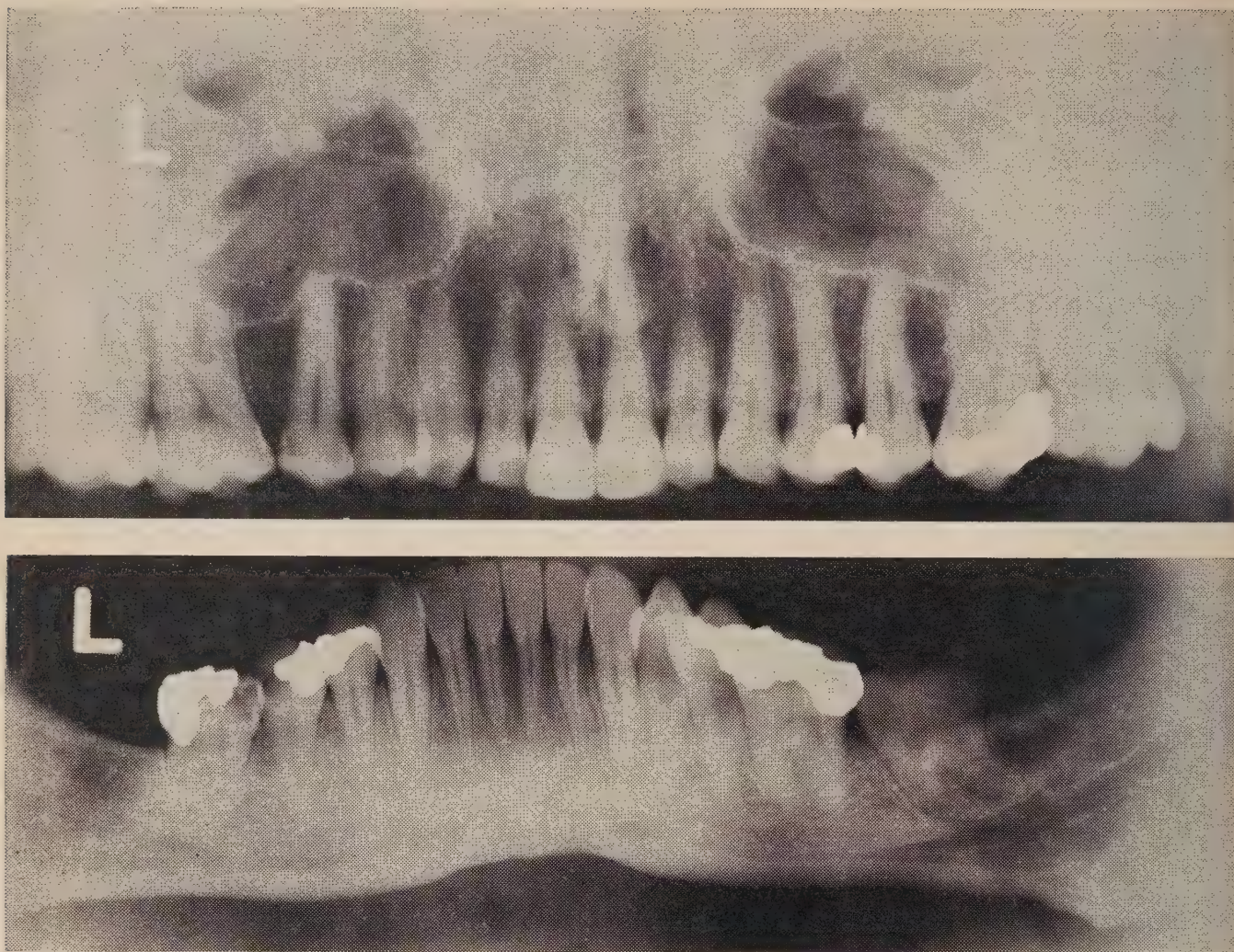


FIGURE 12 Maxillary and mandibular panoral radiographs produced by the Panoramix. (Updegrave, W.J. D. Radiog. & Photog. 36:75, 1963.)

survey where 14 to 24 film packets are involved.

There is a distinct advantage in the survey type of examination in that unsuspected pathological features or abnormalities may be seen that can be more thoroughly studied on a single film or series of films.

Patient or head positioning is critical with panoramic techniques. Marked changes in film images result from even the slightest tipping of the head. The cephalostats in the panoramic apparatus could be improved and should be better designed. Correct head positioning is difficult to obtain when using the Orthopantomograph. With this apparatus the rotational axis and cam guide must also be adjusted to an exact correctness.

The Panoramix, in its present state of development, requires separate exposures for the maxilla and mandible. Attempts

are being made, however, to develop a technique for projecting the whole area on one film.

The Panorex, being the simplest and most trouble free apparatus, is also the machine most commonly used at the present stage of development. As far as I know, it is the only one with a small and large cam to accommodate child and adult patients. The skin surface exposed is said to be one sixth of that involved in a complete periapical survey. The manufacturer of the Orthopantomograph apparatus intends to supply a small type of cam guide to accommodate the child patient.

The manufacturer of the Orthopantomograph also produces a Multi-Planigraph that is used in medical tomography. This equipment, which is capable of making radiographs in layers in steps of 1 mm., is expected to revolutionize the examina-

Comparative data on current apparatus for panoramic radiography. Figures are approximate.

	Rotagraph	Panorex	Orthopantomograph	Panoramix
Kilovoltage	85	86	85	52.5
Milliamperes	30	8	15	1
Focal spot (mm.)	0.8	0.8	1.8	0.1
Target-object distance (inches)	14.5	7-13.5	15	0.5
Object-film distance (inches)	3.5	3.5-10	3.5	0.5
Target-film distance (inches)	18	17	18.5	1
Aluminum filter (mm.)	3	2	2-4	1.5
Exposure time (secs.)	12	22	12	0.3

tion of parts of the skull, such as the petrous bones and middle ear. An adaptation of this type of apparatus might open up new fields of investigation in the mandible and maxilla.

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1. Paatero, Y. V. New tomographical method for radiographing curved outer surfaces. *Acta Radiol.* 32:177, 1949.
2. Idem. Pantomography in theory and use. *Acta Radiol.* 41: 321, 1954.
3. Idem. Pantomography and orthopantomography. *Oral Surg., Oral Med. & Oral Path.* 14:947, 1961.
4. Hudson, D. C. and Kumpula, J. W. Ionization

chambers for radiation data during dental x-ray exposure. *U. S. Armed Forces M. J.* 6:1131, 1955.

5. Hudson, D. C., Kumpula, J. W. and Dickson, G. A panoramic x-ray dental machine. *U. S. Armed Forces M. J.* 8:46, 1957.
6. Kumpula, J. W. Present status of panoramic roentgenography. *J. A. D. A.* 63:194, 1961.
7. Nelsen, R. J. and Kumpula, J. W. Panographic radiography. *J. D. Res.* 31:158, 1952.
8. Blackman, Sydney. Rotational tomography of the face. *Brit. J. Radiol.* 33:408, 1960.
9. Idem. Panagraphy. *Oral Surg., Oral Med. & Oral Path.* 14:1178, 1961.
10. Updegrave, W. J. Panoramic dental radiography. *Dental Radiog. & Photog.* 36:75, No. 4, 1963.
11. Graber, T. M. Panoramic radiography in dentistry. *J. Canad. D. A.* 31:158, 1965.

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University of Alberta*

Every dentist should be protected against disability due to sickness or accident. Canadian Dental Association sponsored pension and insurance plans have a variety of sickness and accident policies to suit individual needs. Why not write for further details to the administrator of CDA-sponsored pension and insurance plans, Professional and Industrial Pensions Ltd., 2249 Yonge Street, Toronto 7, Ontario.

Methodical approach to radiographic interpretation

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Accurate interpretation of oral radiographs depends on methodical evaluation of the image created by bone, teeth and soft tissue. Principal changes in bone are manifested by increased radiolucency, increased radiopacity, increased radiolucency plus radiopacity, or alteration of the bone pattern. Supplemental observation may reveal changes in the external surface of bone and secondary effects upon teeth and the lamina dura. Radiographic changes apparent in teeth are manifested as deviations in the general shape or abnormal appearance of the crown or root. Changes in the pulp chamber or root canal are less commonly noted. Scrutiny of the radiographic features of soft tissue, though often overlooked, has been known to reveal the presence of a sialolith in a salivary duct or a mucous retention cyst at the base of the maxillary sinus.

Pour arriver à une interprétation exacte des radiographies buccales, il faut un examen méthodique de l'image formée par les os, les dents et les tissus mous. Les principales modifications de l'os se manifestent par une radiotransparence plus grande, une radiopacité plus marquée, ou une combinaison des deux en même temps. Il peut aussi y avoir une modification du contour de l'os. D'autres observations peuvent aussi révéler des altérations de la surface externe de l'os, et des effets secondaires sur les dents et la lamina dura. Les altérations des dents apparaissent sur les radiographies comme des déformations de l'aspect général de la dent. On voit moins souvent les changements de la chambre pulpaire ou du canal radiculaire. On néglige souvent l'examen des caractéristiques radiographiques des tissus mous, mais il peut révéler la présence d'un sialolithe dans les canaux salivaires ou d'un kyste muqueux à la base des sinus.

The study of radiographs should be termed 'interpretation' rather than 'diag-

nosis.' Diagnosis is undertaken by the clinician when he possesses information

TABLE 1 Sequence for studying radiographic changes in bone.

Main changes	
Normal	
Variant of normal	
Abnormal	(a) Increased radiolucency Observe: shape edge (defined or indefinite, smooth or irregular, corticated) internal structure (b) Increased radiopacity Basic considerations: superimposition foreign body bony substance tooth substance (tooth, supernumerary tooth, root, odontome) (c) Mixture of increased radiopacity and increased radiolucency (d) Altered bone pattern; density unchanged
Additional observations	
Effect on external surface of bone	lingual plate buccal plate lower border of mandible floor of antrum and nose thinned displaced destroyed deposition of new bone externally
Effect on teeth	tilted moved bodily standing in space resorbed hypercementosis
Effect on lamina dura	thinned destroyed

from many sources, one of which is the x-ray picture. For this reason maximum information should be gleaned from radiographs so that it can be added to other observations and used to full advantage.

The interpretation of radiographs of the dental area is seldom simple. It is therefore essential to adopt a methodical approach.

There are three main areas of interest to which the observer can direct his attention. These are the teeth, bone and soft tissue.

BONE

Of these three areas it is bone which presents the greatest difficulty. Table 1 outlines a suggested sequence of studying radiographs of bone.

The radiographic appearance of bone can be normal, a variant of normal or abnormal. In the dental area the range of normal is very large, and many variants of normal simulate pathological conditions (Figure 1). Consideration of this factor is essential in interpretation.



FIGURE 1 (l.) Two radiographs of the posterior mandible showing normal bone pattern in the upper illustration and a variant of normal in the lower. The latter could be mistaken for a pathological lesion.

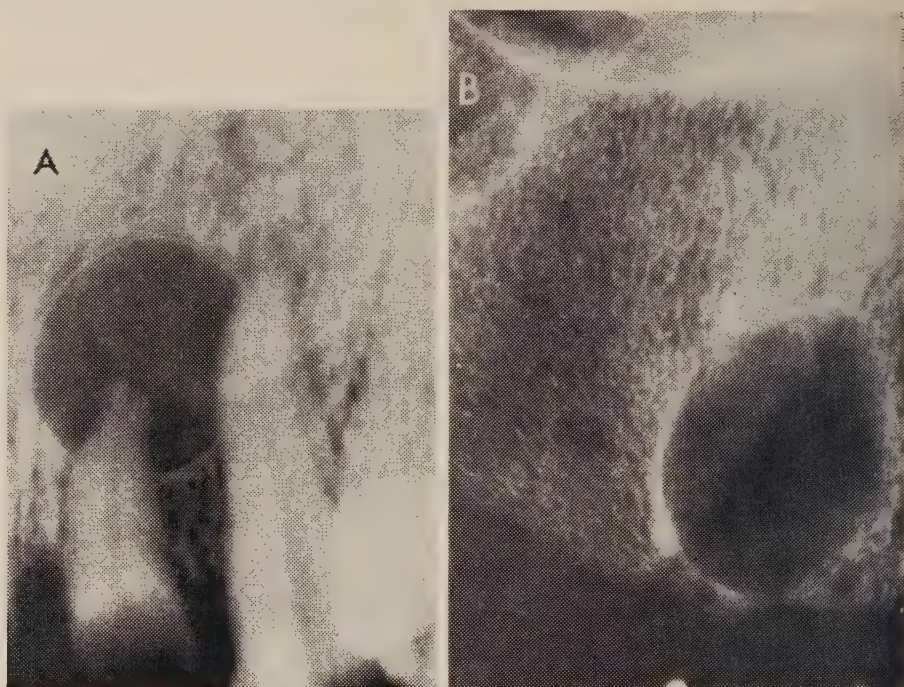


FIGURE 2 (r.) Three radiographs showing the main change of radiolucency but with variations in the shape, edge, cortication and internal structure. A, In this case the shape is circular, the edge is definite, and there is cortication. Such an appearance suggests a radicular (dental) cyst. B, A radiolucent zone which is roughly oval in shape, has a definite edge and is corticated in some of its outline. This appearance is more probably caused by a benign tumour. C, An irregular shaped radiolucent zone with a definite, in some areas corticated, outline. Structure can be observed within the zone of radiolucency. This is an ameloblastoma.

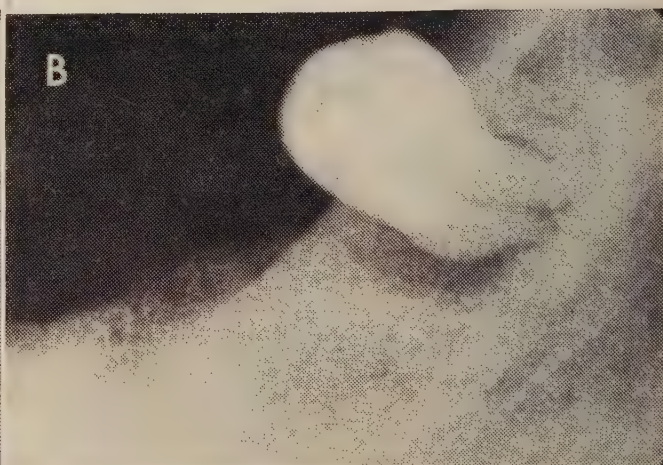
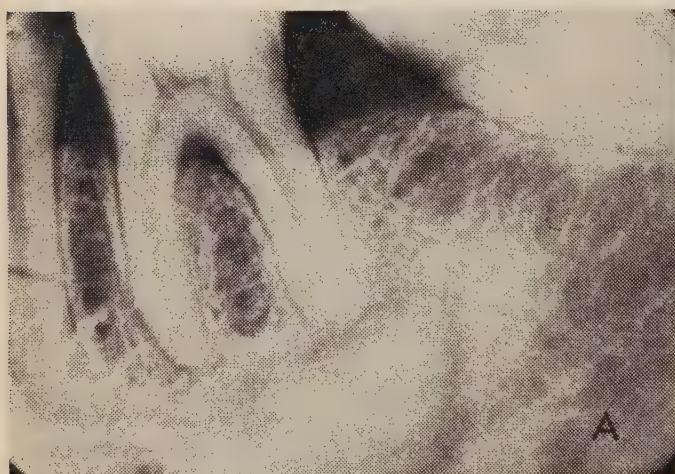
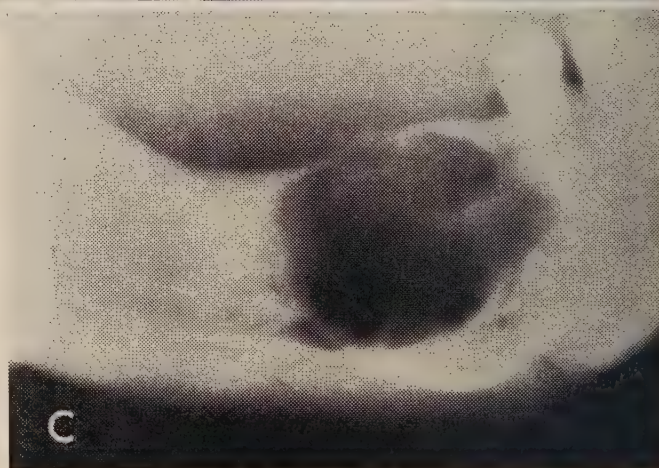


FIGURE 3 Two examples of a lesion causing increased radiolucency and increased radiopacity. A, Periapical osteofibrosis, showing an area of increased radiopacity surrounded by an area of increased radiolucency. B, Chronic inflammation, which has caused an area of radiolucency surrounded by an area of increased radiopacity.

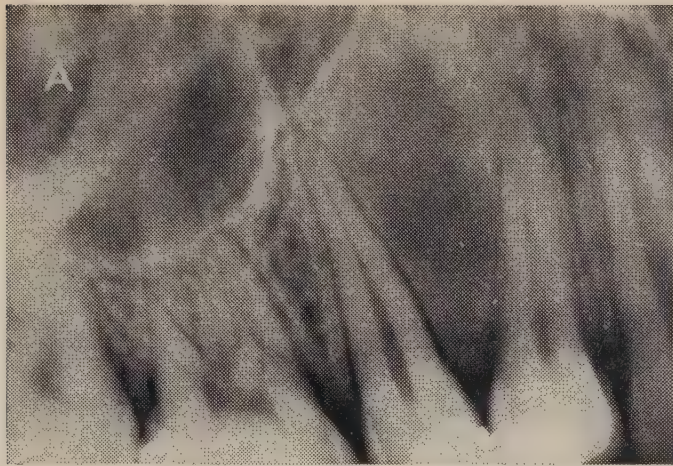


FIGURE 4 Two examples of a change in bone pattern with unaltered density. A, Fibrous dysplasia. The bone pattern between the two bicuspids has changed although the density is similar to that of the surrounding bone. The lamina dura is indistinct in the vicinity of the lesion. B, Change in the normal pattern of bone caused by anaemia.



FIGURE 5 Different types of periosteal new bone. Osteomyelitis, ossification of a haematoma, and infantile cortical hyperostosis can produce the pattern illustrated at the top. The middle example is seen in periostitis, and a somewhat similar picture may be produced by Ewing's tumour. The bottom diagram depicts the appearance which may be present in inflammation or eosinophilic granuloma.



FIGURE 6 Laminated type of periosteal new bone found in periostitis.

Main Changes.—If the appearance of bone is abnormal it can show four main changes only: increased radiolucency, increased radiopacity, a mixture of increased radiolucency and increased radiopacity, or change in the bone pattern without any alteration of the density.

If the lesion produces radiolucency, the shape of the affected area should first be examined. The edge should next be inspected to determine whether the periphery is well defined or indefinite, smooth or irregular, and whether or not a cortex is present. Finally, structure within the zone of radiolucency should receive attention (Figure 2).

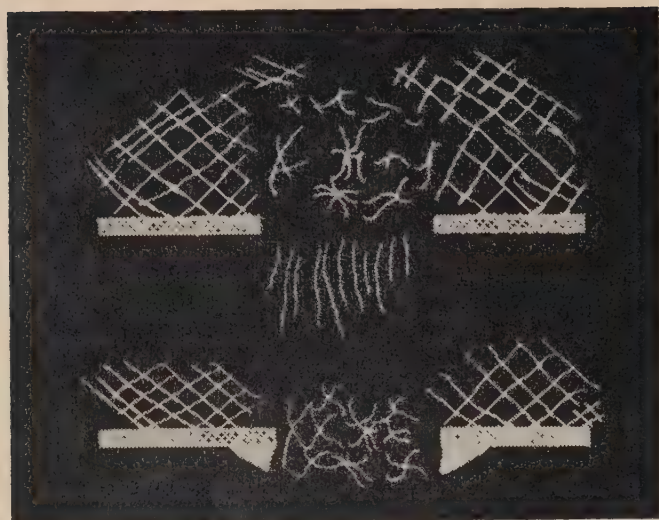


FIGURE 7 New bone formation external to the normal bone and caused by a malignant tumour (osteogenic sarcoma). The upper diagram illustrates sunray spicules; the lower diagram depicts Codman's triangles.

The causes of increased radiopacity in bone are superimposition, foreign bodies, bone substance and tooth substance. Objects composed of tooth substance can be further divided into normal teeth, supernumerary teeth, retained roots and odontomes.

A mixture of increased radiolucency and increased radiopacity is seen in periapical osteofibrosis (cementoma, cementoblastoma) and long-standing chronic inflammation (Figure 3). This phenomenon is also occasionally observed in osteomyelitis and Paget's disease (associated with a change in bone pattern).

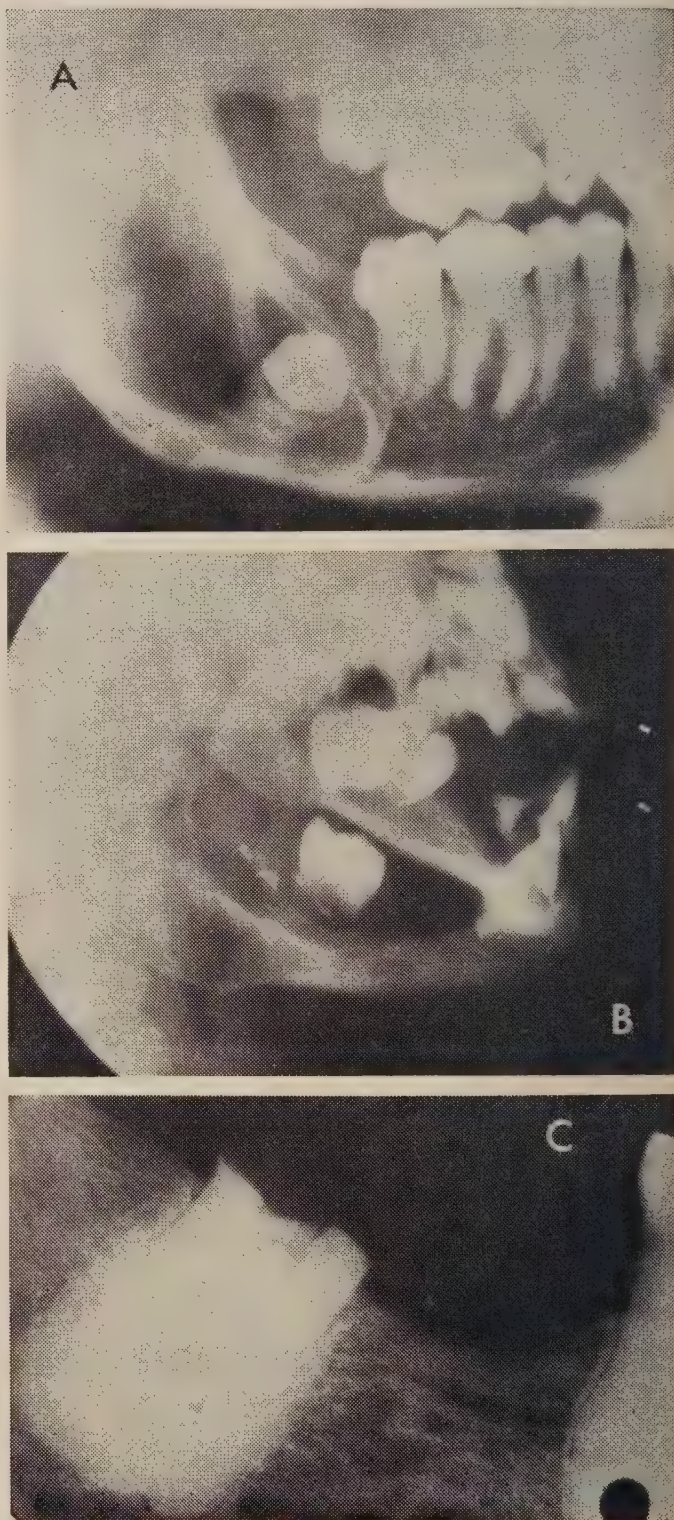
Modification of the bone pattern without alteration of the density may occur in fibrous dysplasia, Paget's disease and anaemia (Figure 4).

Additional Observations.—Further to the main changes there are several additional factors which should be noted. These concern changes observed in the external surface of bone: the lingual plate, buccal plate, lower border of the mandible, floor of the maxillary sinus and floor of the nose. The other additional factors to be noted are the effect on the teeth and the lamina dura.

The external surface of bone can show four changes. The cortical plate can be thinned, either by an internal or an ex-

ternal agent. The contour can be altered, usually by outward displacement, with or without thinning of the cortex. There can be complete destruction of the outer surface of bone. Deposition of new bone ex-

FIGURE 8 Different effects on the teeth caused by pathological conditions. A, A dentigerous cyst causing bodily movement of a tooth. B, Bone destruction and free standing tooth in Hand-Schüller-Christian's disease. A malignant lesion can produce the same result but its edge would be rough and irregular. C, Hypercementosis in Paget's disease.



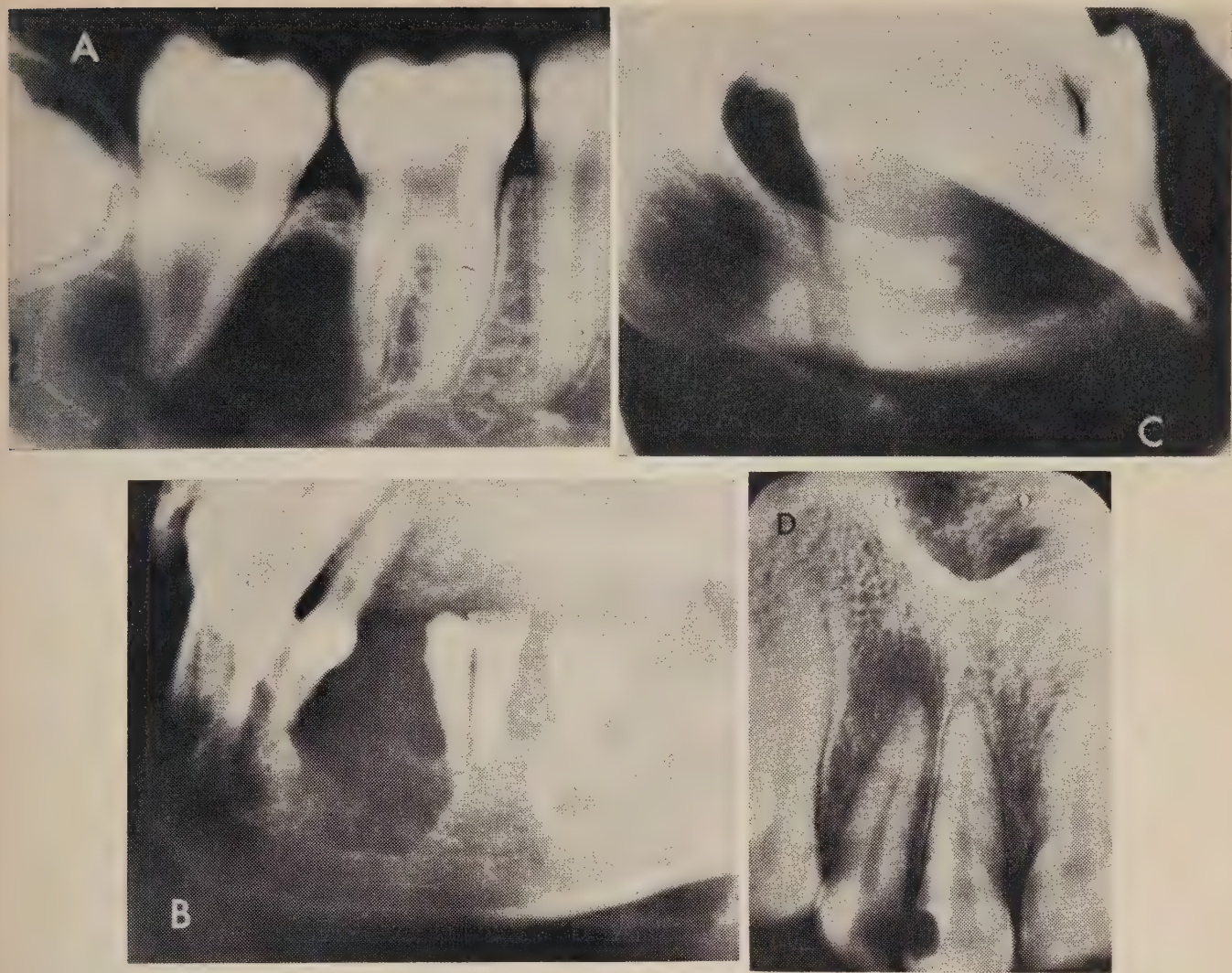
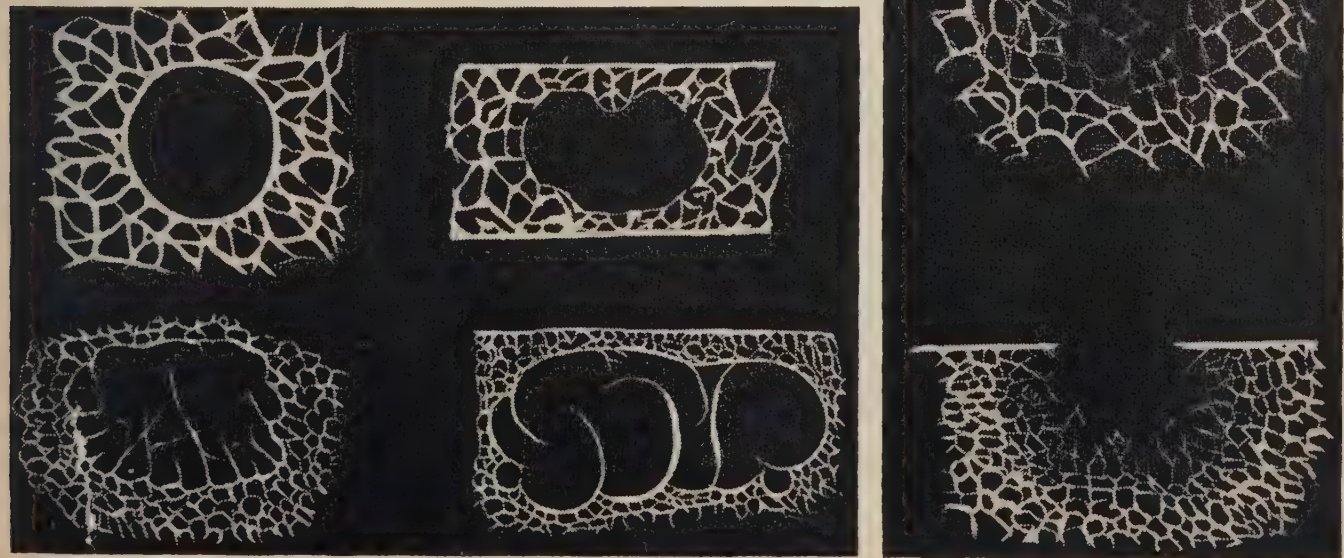


FIGURE 9 Radiographs illustrating features depicted in Figures 10 and 11. A, Simple bone cyst. B, Giant-cell lesion. C, Malignant lesion. D, Rarefying osteitis.

FIGURE 10 Points to observe in abnormal radiolucent areas. Top left: circular zone with a definite edge and marked cortex represents a radicular cyst. Top right: irregular zone with an indefinite edge represents a simple (traumatic) bone cyst. Lower left: nondescript shape with a definite but irregular edge and delicate internal pattern of opaque, fairly straight lines represents a giant-cell lesion. Lower right: zone with a definite but very irregular edge consisting of a series of curves with a cortex in most regions. Within the zone there are definite radiopaque curves. This represents an ameloblastoma.

FIGURE 11 Two radiolucent lesions, without a definite edge. The upper diagram depicts inflammation typically seen at the apex of a non-vital tooth. The rough irregular 'chewed out' edge in the lower diagram is caused by malignant change.



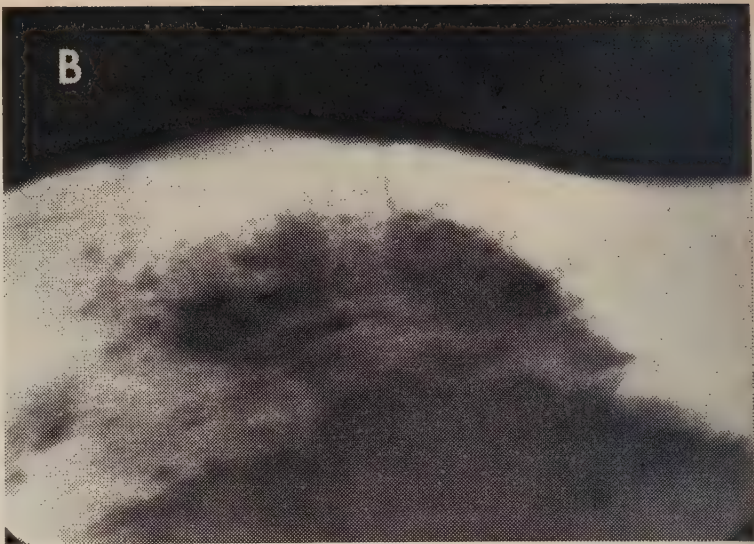


FIGURE 12 Changes in the external surface of bone. A, A cyst bulging the buccal wall of the mandible. B, A fibro-sarcoma destroying the lower border of the mandible. C, Osteomyelitis causing deposition of periosteal new bone external to the lower border of the mandible.

FIGURE 13 Pathological change in the lamina dura. A periodontic abscess causing destruction of the lamina dura.



ternal to the normal surface may occur and this can present several different appearances. The latter change can result from periosteal reaction or tumour activity. It is seen in osteomyelitis, periostitis, eosinophilic granuloma, ossification of a haematoma, infantile cortical hyperostosis, osteogenic sarcoma, Ewing's tumour, and sclerosing metastatic carcinoma (Figures 5-7).

Pathological lesions may have an effect on the teeth. The latter may be tilted with maximum movement occurring usually at the apex. Bodily movement of the teeth in any direction may occur in connection with dentigerous cysts (Figure 8A), fibrous dysplasia, giant-cell lesions and ameloblastoma. One or more teeth may appear to be standing in space as seen in malignant lesions and the lipoidoses (Figure 8B). A lesion in the bone may cause resorption of tooth substance. Hyper-

cementosis may occur as a manifestation of a pathological condition of bone (Figure 8C).

The lamina dura may be destroyed around one or more teeth (Figure 9). There may also be thinning of this structure throughout the mouth or in a localized area.

The conditions which cause radiolucency include disuse atrophy, bone remodelling, surgical defects, rarefying osteitis, pericoronitis, osteomyelitis, cysts, benign neoplasms, malignant neoplasms, fibrous dysplasia, periapical osteofibrosis, Paget's disease, hyperparathyroidism and the lipoidoses.

Figures 10 and 11 show diagrammatically the salient points of observation in a lesion in which radiolucency is the main

change. The radiographs in Figure 9 show some examples. Figures 8, 12 and 13 demonstrate the additional observations which have been discussed.

As mentioned earlier, radiopaque areas can be grouped into four categories: superimposition, foreign bodies, bone substance and tooth substance. Superimposed shadows can be caused by bone structure, soft tissue, or external objects (Figure 14). Foreign bodies in the tissues may be metallic substances (amalgam, missiles and so forth), endodontic medicaments or instruments, opaque medium, glass (Figure 15), or other objects. The radiopaque zones attributable to bone-like substance are many, the commonest being anatomical structures, dense bone islands, sclerosing osteitis, tori, osteomas, other

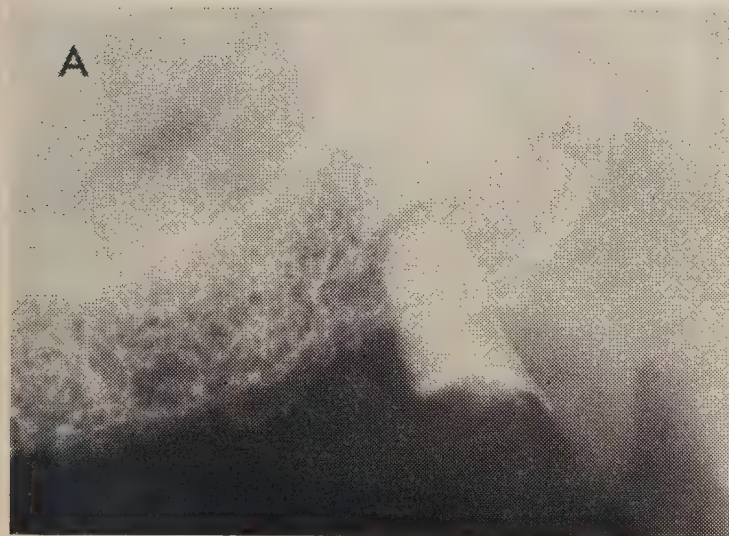


FIGURE 14 Radiopaque shadows caused by superimposition. A, Superimposition of the coronoid process close to a retained root simulates the presence of two roots. B, The upper shadow is caused by the nose, the lower one by the lip.



FIGURE 15 (I.) Radiopaque shadow caused by a piece of glass in the cheek.

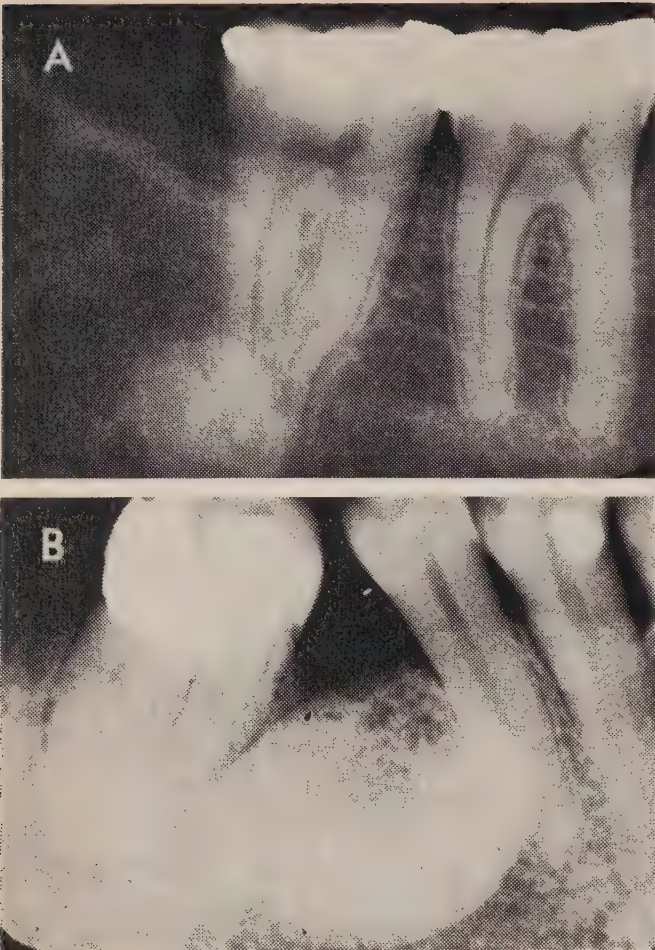


FIGURE 16 Radiopaque shadow caused by bone or bone-like substance. A, Dense bone island (enostosis). B, Cancellous osteoma.

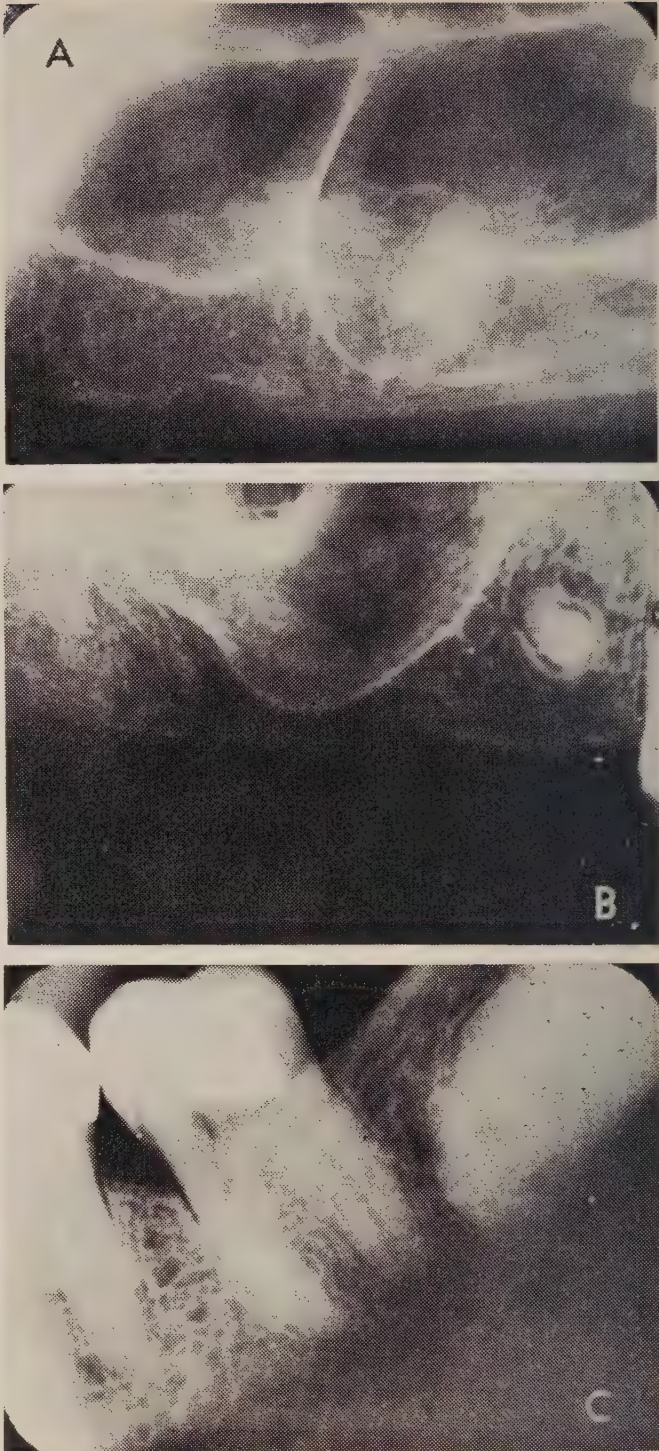


FIGURE 17 Radiopaque shadows caused by tooth substance. A, Retained root showing a root canal, periodontal membrane and lamina dura. B, A small supernumerary tooth showing enamel on the crown. C, An odontome with opacity of varying density and with a definite edge. A thin radiolucent line surrounds some parts of the odontome.

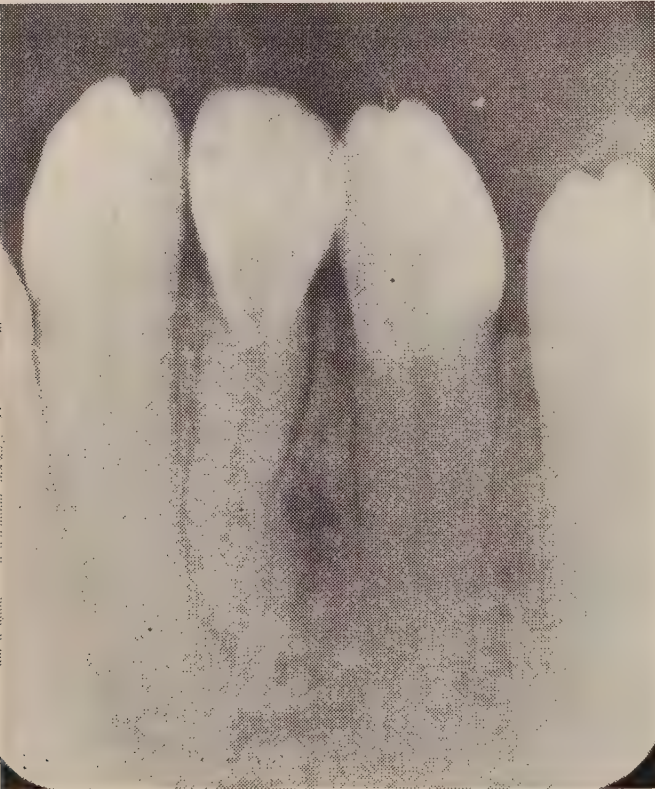


FIGURE 18 (I.) Teeth affected by congenital syphilis.

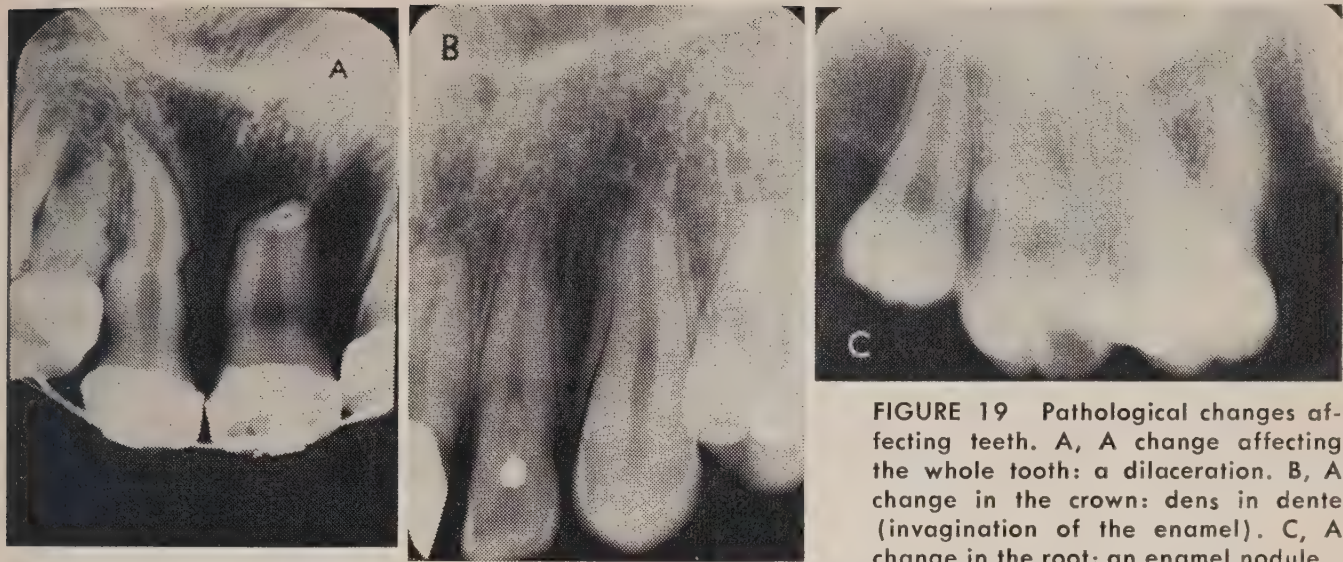


FIGURE 19 Pathological changes affecting teeth. A, A change affecting the whole tooth: a dilaceration. B, A change in the crown: dens in dente (invagination of the enamel). C, A change in the root: an enamel nodule.

neoplasms, and ossification in epulides (Figure 16). Opaque areas caused by tooth substance include, as mentioned earlier, normal teeth, supernumerary teeth, retained roots and odontomes (Figure 17). To this could be added hypercementosis.

TEETH

Radiographic changes in the teeth are more readily observed and more easily understood than radiographic changes in the bone. They should, nevertheless, be studied methodically. Table 2 shows a suggested plan of approach.

Deviations from normal in the general

shape are usually well recognized. In the presence of certain conditions, however, the interpretation of such abnormalities may present more difficulty. For instance, malformations and defective development associated with radiation therapy are complex in their occurrence. A further example of malformation due to a systemic illness is shown in Figure 18.

The abnormal appearances in the root and the crown are listed in Table 2 and examples are shown in Figure 19.

Changes in the pulp chamber and root canal, although easily seen, are less commonly noted. An approach to studying this area is outlined in Table 2 and illustrations are shown in Figure 20.

SOFT TISSUE

Study of the radiographic appearance of soft tissue is often overlooked,

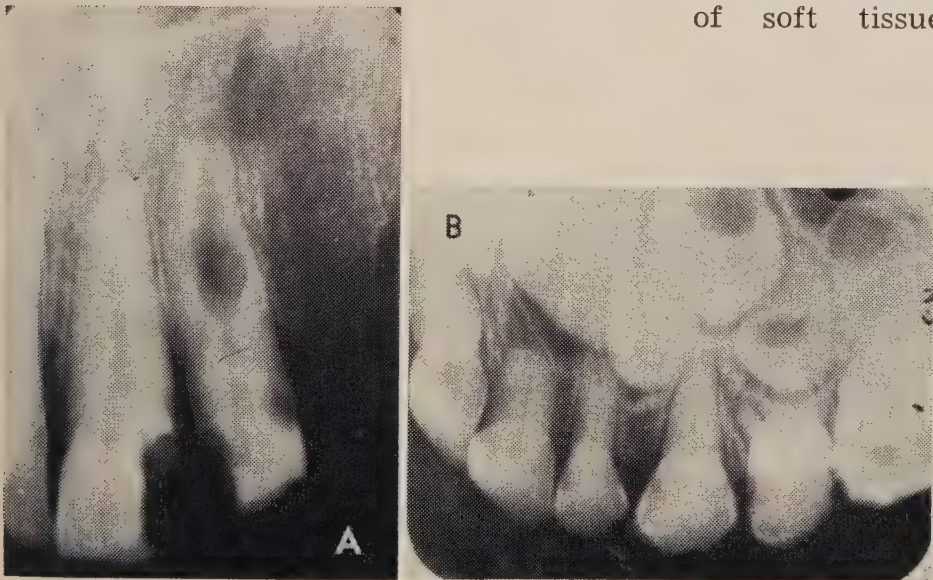


FIGURE 20 Pathological changes affecting the pulp. A, Internal resorption. B, Dentinogenesis imperfecta showing obliteration of the pulps of all visible teeth. This is associated with a roughened surface of the enamel and small spike-shaped roots.



FIGURE 21 Soft tissue radiograph showing a sialolith in the submandibular duct.

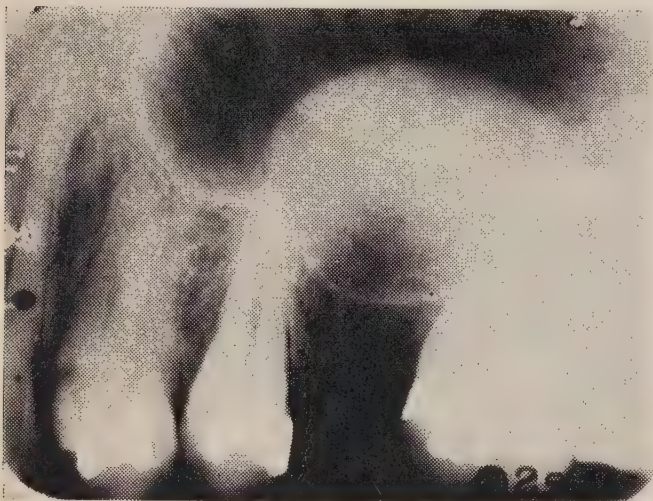


FIGURE 22 Periapical radiograph showing a mass in the base of the maxillary sinus. This is a mucous retention cyst.

TABLE 2 Sequence for studying radiographic changes in teeth.

General shape	supernumerary tooth gemination dilaceration malformation due to radiation therapy systemic disease syphilis ectodermal dysplasia hypothyroidism
Root	external resorption hypercementosis enamel nodule dilaceration dentinogenesis imperfecta
Crown	additional cusps invagination of enamel (dens in dente) enamel defects localized general
Pulp chamber and root canal	internal resorption calcification pulp stone dentine bars calcific degeneration obliteration single tooth multiple teeth

TABLE 3 Sequence for studying radiographic changes in soft tissue.

Enlarged
Irregular outline
Substance within salivary system lymph nodes epulis etc., etc.
Presence in maxillary sinus

although observation of this tissue can yield useful information. Table 3 enumerates features which can be noted in dental radiographs. Figures 21 and 22 show examples of radiographs of soft tissue.

CONCLUSION

This article suggests a logical approach to observations which are necessary for radiographic interpretation. The significance of changes in the radiographic image and the differential interpretation can only be fully appreciated by studying the subject of radiology as a whole. The following publications on radiographic interpretation are recommended for additional reading:

*Professor and head, Department of Radiology, Faculty of Dentistry, University of Toronto.

1. Blackman, Sydney. An atlas of dental and oral radiology. Bristol, Wright, 1959.
2. Ingram, F. L. Radiology of the teeth and jaws, including dental radiography. Ed. 2. London, Edward Arnold, 1965.
3. McCall, J. O. and Wald, S. S. Clinical dental roentgenology; technic and interpretation. Ed. 4. Philadelphia, Saunders, 1957.
4. Stafne, E. C. Oral roentgenographic diagnosis; including an appendix on roentgenographic technic. Ed. 2. Philadelphia, Saunders, 1963.
5. Worth, H. M. Principles and practice of oral radiologic interpretation. Chicago, Year Book Medical Publishers, 1963.

Radiolucent areas of the periapical region

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Radiographs are of the utmost importance in detecting a periapical lesion. Radiolucency encountered in the periapical region may, however, represent normal anatomical structures. It is impossible to differentiate radiographically with certainty an abscess, a granuloma or an apical cyst without microscopic verification. Few cystic and neoplastic lesions possess features that are radiographically characteristic. Radiographic changes due to mild or intermediate trauma are mostly reflected by thickening of the periodontic space.

Les radiographies sont indispensables pour découvrir une lésion périapicale. Certaines zones translucides à la région apicale des dents peuvent cependant représenter des structures anatomiques normales. Il est impossible à la radiographie et sans vérification histologique de faire avec certitude la différence entre un abcès, un granulome ou un kyste apical. Rares sont les lésions kystiques et néoplastiques qui ont une apparence radiologique caractéristique. Les altérations radiologiques causées par un traumatisme léger consistent le plus souvent en un épaissement de l'espace occupé par le ligament périodontaire.

The periapical region is that part of the jaw where an experienced clinician most commonly searches for changes in the radiographic density of bone. Despite the limitation of radiographs, many practitioners regard a zone of bone destruction around the apex of a tooth as an inflammatory phenomenon which reflects the presence of a pulpless tooth. Not all lo-

calized apical areas of radiolucency are pathological, however. Some are due to superimposed anatomical structures. Certain non-inflammatory pathological processes can also produce destruction of periapical bone.

This article deals with the following aspects of radiolucent periapical areas: (1) anatomical features that stimulate de-

struction of apical bone, (2) inflammatory lesions, (3) cystic and neoplastic lesions, and (4) changes due to trauma.

RADIOLUCENT ANATOMICAL STRUCTURES SUGGESTIVE OF PERIAPICAL DISEASE

An anatomical landmark that can be clearly perceived in one film is often indistinct in another. One must always remember that there is a wide range of structural modifications that lie within normal limits and produce a variable radiographic image.

The trabecular pattern of bone projects a variable picture depending on the size of the bone, its medullary space, the thickness of its cortex and the age of the patient. Maxillary bone generally has fine trabeculae arranged in a lacelike pattern. Mandibular trabeculae tend to run horizontally. If the trabeculae have an unusual structure suggestive of periapical pathoses, a comparison with the contralateral side may clarify the question.

The incisive foramen is often mistaken for a pathological abnormality or the site of a cyst. It produces a dark shadow which varies considerably in shape, size and position. It is usually oval and may be indistinct in the dentulous patient. The shadow is almost always in the midline of the maxilla. If the rays are directed from the lateral incisor, the shadow of the foramen may be projected across the midline toward the opposite side. This often leads to erroneous interpretation when the foramen and the apex of a normal incisor are superimposed by radiographic projection, notwithstanding the fact that the lamina dura around the apex of the tooth is intact.

The mental foramen appears as an oval or round radiolucent area usually situated just below and slightly distal to the apex of the lower first bicuspid. If its image is superimposed on the apex of a tooth it may be mistaken for a periapical lesion. Evidence of an intact lamina dura should resolve this problem.

The maxillary sinus presents considerable dimensional variation. It may be so small that it may not be visible in a dental periapical radiograph. It may extend down into the interseptal spaces of

the posterior maxillary teeth and the region of the tuberosity. The floor of the sinus may lie above the apices of the teeth or invaginate between the various tooth roots. The question arises as to whether a normal tooth root can protrude into the maxillary sinus without being surrounded by bony structure. Worth,¹ from his examination of over a million radiographs, states that "the normal tooth never protrudes into the antrum without a bony covering. The covering is frequently very thin, but it is always there, unless disease has caused it to disappear."

Developing teeth often project an apical radiolucent zone resulting from incomplete calcification of the root ends. Commonly encountered in second and third molars of young adults, this phenomenon may be confused with radiolucency produced by inflammatory reaction to dental infection. The tooth follicle appears as a spherical radiolucent area within the bone. Such a radiolucent zone is no problem to the practitioner who knows that the thickened periodontic space may persist for more than six months after the tooth apex appears to be complete.

Finally, it must be remembered that anatomical entities as well as pathological cavities separated from the apex of a tooth can be superimposed on the tooth apex and may simulate apical osteolysis.

INFLAMMATORY LESIONS

There is still much controversy concerning the interpretation of radiolucent periapical areas as so-called 'areas of infection.' For a long time the appearance of such periapical radiolucency was invariably regarded as evidence of infection.²⁻⁴ More recently, several investigators^{1,5-9} have shown that it is impossible to detect infection by radiographic means alone. But unfortunately, many practitioners continue to justify their treatment on the basis of radiographic appearance alone.

Inflammation and necrosis of the dental pulp result most often in circumscribed radiolucency at the root apex. This represents a chronic inflammatory response, usually secondary to caries, chronic pulpi-

tis and the spread of the inflammatory reaction to the apical periodontium. One must consider this radiographic evidence of bone change in the root apex region simply as change in an apical lesion. To understand fully the significance of modifications occurring at the root end, it must be remembered that periapical radiolucency may represent either an abscess, a granuloma or a cyst. The lesion almost always shows an interrupted lamina dura and, since the appearance is quite variable, one must always look in the first place for partial or complete dissolution of the lamina dura. In slowly expansive lesions, the lamina dura is often pushed back away from the tooth apex and space occupied by the periodontic membrane is widened.

Apical lesions are basically spherical. However, the outline may be irregular and marked by a smooth periphery. Most often, the surrounding bone of the alveolar process shows a reduction in the size of the trabecular spaces which appears on the radiograph as an increased opacity or condensing osteitis (Figure 1).

The earliest radiographic evidence of apical lesions (abscess, granuloma or cyst) is usually a widening of the periodontic space in the periapical region. This results from inflammatory changes in the periodontic membrane. Soon the appearance of some of the trabeculae becomes diffuse at the apex, and the shadow of the lamina dura is reduced in thickness and density. Later, there is widespread decalcification of bone. This is reflected by extensive areas of radiolucency with indefinite borders or a smooth periphery.

The peripheral appearance of the lesion can vary greatly. It may be ill-defined



FIGURE 1

and irregular, gradually merging with the normal bone. A definite demarcation may exist between the lesion and the bone with or without a distinct bone lamina encircling the zone of radiolucency. The centre of the lesion can vary from a shade of grey to almost total blackness (Figures 1-3). It may be added that an acute condition such as an acute abscess will not show any radiographic changes.

Osteomyelitis, when encountered in the periapical region at an early stage, manifests no visible radiographic evidence of alteration of trabecular pattern and destruction of bone. Worth¹ states that in order to reveal a change, the bone must be deprived of at least 30 per cent (to 60 per cent) of its calcium content. The first change appears as a loss of continuity of



FIGURE 2 ▶



FIGURE 3 ▶

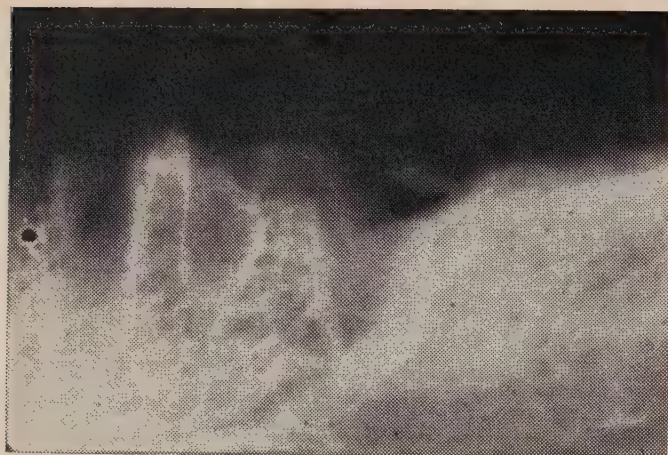


FIGURE 4

the lamina dura at the apices of more than one tooth. Sequestration follows and the radiographic picture will show radiopaque islands of bone (Figure 4). Needless to say, before attempting a diagnosis of osteomyelitis by means of radiology, one must know the full history of this progressive inflammation of bone. Acute exacerbation of periapical lesions and fractures is the usual precipitating factor.

When the dentist encounters a radiolucent zone, he must realize that the inflammatory process has preceded the radiographic changes. Consequently, this process is usually more extensive than the radiographic image would suggest.

CYSTIC AND NEOPLASTIC LESIONS

McCall and Wald⁴ have defined a cyst as a circumscribed radiolucent area, usually more than three-eighths of an inch in diameter, sharply outlined and bounded by a thin, even white line which represents a layer of cortical bone. Stafne¹⁰ has stated that the radiographic image of a dental granuloma is generally not as defined and precise as the small, fully developed cyst. These observations are challenged by others¹¹⁻¹⁴ who have demonstrated the lack of correlation between radiographic and histological assessment of periapical manifestations. It is now generally held that accurate diagnosis of a periapical lesion depends on microscopic verification. The presence of a devitalized tooth in association with a zone of periapical radiolucency indicates that the lesion represents, in all probability, a dental granuloma or a radicular cyst.

A radicular cyst is radiographically characterized by a more or less clearly defined radiolucent zone in relation to the apical area of the diseased tooth. The size of the lesion varies considerably. It is usually larger than a dental granuloma. It may affect more than one tooth. The increased radiolucency at the apex of a root is almost always associated with the loss of some part of the lamina dura. It is obvious that a radicular cyst can simulate some areas of rarefying osteitis which may have the same radiographic features as the cyst, but these two lesions cannot be radiographically distinguished. The radicular cyst is usually much smaller than its radiographic image would suggest. The remainder of the image represents a dental granuloma. The explanation for this phenomenon is that a dental granuloma, if not treated, is gradually transformed into a radicular cyst.

A primordial cyst arises from a tooth germ which, instead of forming a tooth, degenerates into a cyst. It is identified by a well defined area of radiolucency that is not associated with any erupted or unerupted tooth. Suspicion about such a cyst is aroused when routine intra-oral radiographs are examined.

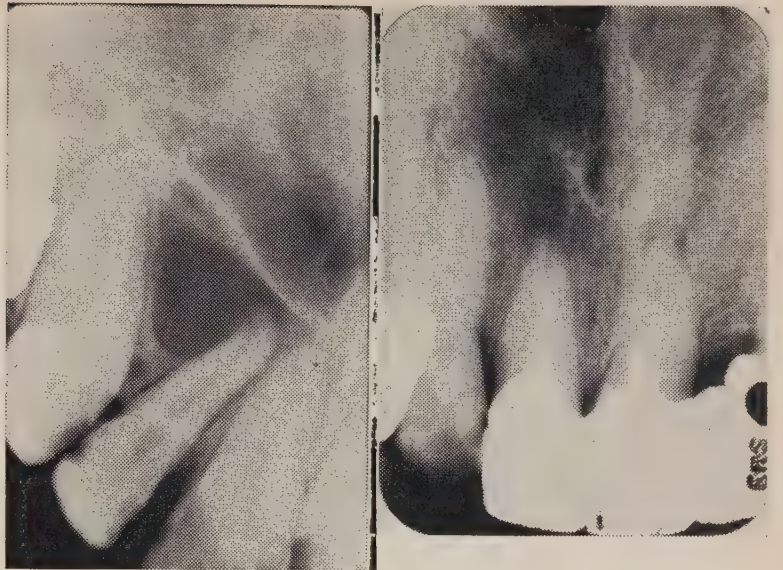
A dentigerous cyst (which arises from the enamel organ after partial completion of the crown) is portrayed by a clearly demarcated radiolucent zone surrounding the crown of an unerupted tooth. The criteria for radiographic identification are arbitrary and microscopic examination will often reveal that the suspected cyst is only a follicle without an epithelial lining.⁷

A globulomaxillary cyst arises from epithelial remnants in the area where there is fusion of the globular and maxillary processes during embryonic development. This cyst is always seen between the maxillary cuspid and the lateral incisor. It displaces the roots of these two teeth (Figure 5). The radiographic appearance is characteristic and shows a pear-shaped zone of radiolucency between the cuspid and the lateral incisor. The neck of the 'pear' is between the coronal parts of the teeth.

An incisive canal cyst produces a circumscribed heart-shaped radiolucent zone in the anterior part of the maxilla (Figure

FIGURE 5 (adjacent)

FIGURE 6 (extreme r.)



6). This lesion is of radiographic significance because it may simulate an apical abnormality when it occurs low in the canal and the upper central incisors are present. A differential diagnosis is made on the basis of vitality of adjacent teeth or teeth whose roots appear to be involved. An occlusal film will usually demonstrate that the cyst lies well behind the roots.

A lateral periodontic cyst is always found lateral to the root of an erupted tooth. This cyst appears as a well defined radiolucent area located between the roots of the teeth (Figure 7). As a rule the lesion does not extend to the root end of the tooth. However, one cannot depend on radiographic appearance for

the diagnosis because certain other pathological processes may have a similar appearance. Differential diagnosis must be made from ameloblastoma and ossifying fibroma.

A periapical radiolucent zone on a vital lower incisor in women is most commonly caused by a condition described as the osteolytic stage of cementoma (Figure 8). This lesion is usually noticed when radiographs are made for routine examination or for some other purpose. It appears at first as a well circumscribed area of radiolucency involving the apex of a root. The radiographic image is indistinguishable from that of rarefying osteitis. At this stage, the lesion consists of fibrous connective tissue containing

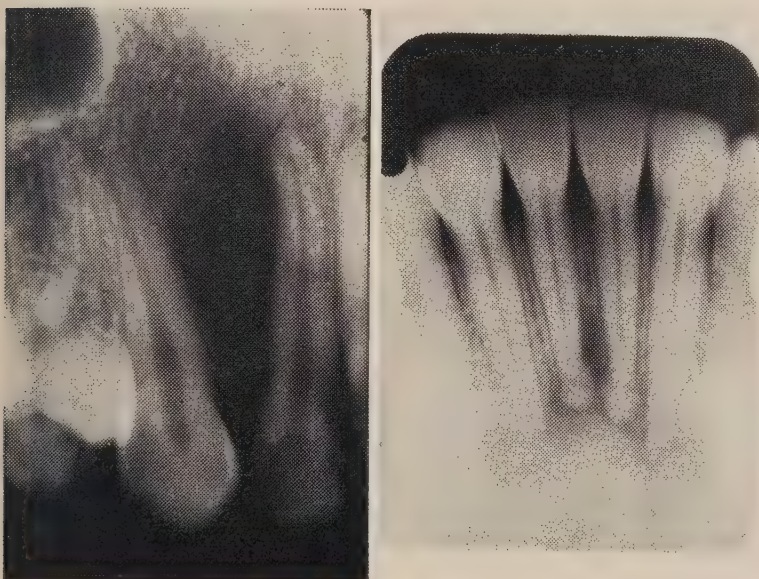


FIGURE 7 (extreme l.)

FIGURE 8 (adjacent)

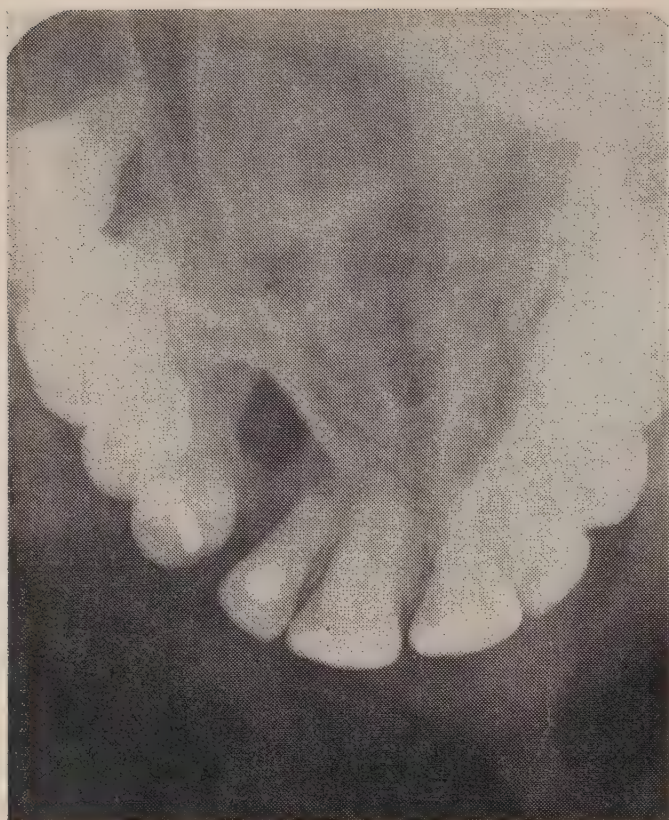


FIGURE 9

small calcified spots. Later, increasing radiopacity develops within the centre of the radiolucent zone. Finally, the radiographic picture is one of a dense central nidus with a thin zone of radiolucency about the periphery.¹⁵

Radiographic findings are variable in ossifying fibroma and giant-cell lesions. In fibrous dysplasia of bone a fine 'ground glass' appearance of the affected area is quite common. Radiolucent zones in these three lesions may simulate infection, especially when the lamina dura is thinned or absent.

Ameloblastoma is identified by clinical and radiographic examination. The diagnosis is confirmed by microscopic examination. The classical lesion appears on a radiograph as a unilocular or multilocular, honey-combed or 'soap bubble' area. A biopsy is always essential for diagnosis of an ameloblastoma because many intra-osseous lesions present similar, if not identical, radiographic features.

CHANGES DUE TO TRAUMA

When viewing a periapical zone of radiolucency, the dentist must consider

whether the bone destruction is the result of previous surgery or trauma.

Postsurgical defects may become permanent entities. The radiographic evidence of such defects may cause confusion when a history of a previous surgical operation is not available. For instance, a large area of radiolucency can be permanently seen after the surgical extraction of an embedded maxillary cuspid where both the labial and palatal plate of bone have been removed (Figure 9). A similar defect may be produced when apicoectomy is done on an anterior tooth. The resulting radiolucency near the apex may suggest that the endodontic treatment was unsuccessful. Surgical operations on the maxillary sinus may also produce periapical radiolucency at the apices of adjacent teeth. When such radiographic appearances are encountered, a history of previous surgery must always be verified because such a picture may represent conditions other than postsurgical defects.

The so-called traumatic bone cyst is essentially a cavity within the bone which is not lined with an epithelial sac. It is a pseudo-cyst. Usually the result of trauma, this lesion is seen most frequently in younger patients before the age of 25. It is almost always situated in the body of the mandible and is usually solitary. It is discovered on routine radiographic examination. It appears as a well defined radiolucent area which, if located near or at the apices of several teeth, may be indistinguishable from a radicular cyst or other radiolucent lesion.

One of the characteristic features of a traumatic bone cyst is its tendency to assume the shape determined by the cortical plates of bone and the roots of adjacent teeth. Its borders are irregular and not as well defined as the borders of a true cyst. It is highly important to recognize this lesion and thus prevent the loss of useful teeth.

Traumatic occlusion or imbalance most often results in varying degrees of periodontic space thickening. The normal periodontic space varies in different individuals. In some it may be wider than one might expect. However, when such natural widening is seen on a radiograph, the entire periodontic membrane, rather

than just the apical portion, is affected.

Tooth extrusion often causes a thickening of the periodontic space and is not ordinarily associated with common types of periapical lesions. It is usually linked with trauma. Any traumatic influence on a tooth will result in a thickening of the space occupied by the periodontic membrane unless the patient is physiologically capable of withstanding the trauma. If this is the case, the periodontic space will return to its normal appearance after the inflammation has subsided.

Orthodontic tooth movement may cause a thickening of the periodontic space. This thickening may alarm the neophyte practitioner. Any blow or slight transient trauma may produce varying degrees of periodontic space thickening. If deep caries or other obscure clinical symptoms are also present, the dentist may be tempted to institute endodontic or exodontic treatment.

A sharp blow usually produces a clear radiographic picture as in Figure 10 where one observes fracture of a root apex and an extensive radiolucent area.

SUMMARY

1. Radiographs are of the utmost importance in detecting a periapical lesion.

2. Radiolucency encountered in the periapical region may, however, represent normal anatomical structures.

3. It is impossible to differentiate with certainty radiographs of abscesses, granuloma or apical cysts without microscopic verification.

4. Few cystic and neoplastic lesions possess features that are radiographically characteristic.

5. Radiographic changes due to trauma are mostly reflected by thickening of the periodontic space.

*Professor of oral diagnosis and radiology, Faculty of Dental Surgery, Université de Montréal.

1. Worth, H. M. Principles and practice of oral



FIGURE 10

- radiologic interpretation. Chicago, Year Book Medical Publishers, 1963.
2. Bulleid, Arthur. Bacteriology for dental students. Ed. 2. London, Wm. Heinemann, 1938 and St. Louis, Mosby, 1938.
3. Hutchinson, A. C. Dental and oral x-ray diagnosis. Edinburgh, Livingstone, 1954.
4. McCall, J. O. and Wald, S. S. Clinical dental roentgenology; technic and interpretation. Ed. 4. Philadelphia, Saunders, 1957.
5. MacDonald, J. B., Hare, G. C. and Wood, A. W. S. Bacteriologic status of the pulp chambers in intact teeth found to be non-vital following trauma. Oral Surg., Oral Med. & Oral Path. 10:318, 1957.
6. Hedman, W. J. Investigation into residual periapical infection after pulp canal therapy. Oral Surg., Oral Med. & Oral Path. 4:1173, 1951.
7. Sommer, R. F., Ostrander, F. D. and Crowley, M. C. Clinical endodontics; a manual of scientific endodontics. Philadelphia, Saunders, 1956.
8. Weinreb, M. M. Conservative treatment of extensive areas of periapical pathology. Oral Surg., Oral Med. & Oral Path. 13:858, 1960.
9. Wuehrmann, A. H. and Manson-Hing, L. R. Dental radiology. St. Louis, Mosby, 1965.
10. Stafne, E. C. Oral roentgenographic diagnosis; including an appendix on roentgenographic technic. Ed. 2. Philadelphia, Saunders, 1963.
11. Priebe, W. A., Lazansky, J. P. and Wuehrmann, A. H. Value of the roentgenographic film in the differential diagnosis of periapical lesions. Oral Surg., Oral Med. & Oral Path. 7:979, 1954.
12. Baumann, Lisbeth and Rossman, S. R. Clinical roentgenologic and histopathologic findings in teeth with apical radiolucent areas. Oral Surg., Oral Med. & Oral Path. 9:1330, 1956.
13. Wais, F. T. Significance of findings following biopsy and histologic study of 100 periapical lesions. Oral Surg., Oral Med. & Oral Path. 11:650, 1958.
14. Linenberg, W. B., Waldron, C.A. and DeLaune, G. F. Clinical roentgenographic, and histopathologic evaluation of periapical lesions. Oral Surg., Oral Med. & Oral Path. 17:467, 1964.
15. Fontaine, Jean. Periapical fibro-osteoma or cementoma. J. Canad. D. A. 21:10, 1955.

C. P. 6128,
Montreal, P. Quebec

1963 Survey of Dental Practice

7. Time spent in private practice

Bureau of Economic Research

As in previous surveys of dental practice, the hours dentists worked in a week in 1963 were broken down into three types of professional activity: hours at the chair, hours in the laboratory and other hours spent charting, interpreting radiographs and planning treatment.

AVERAGE DENTIST WORKS 41 HOURS PER WEEK

On the average, Canadian dentists worked 41 hours each week. Eighty per cent of their time or 33 hours were spent at the chairside and 20 per cent or eight hours of their time were divided equally between laboratory and various other professional duties.

The total hours worked and the breakdown of these hours into the three categories of activity have not changed over the past 10 years. Total hours have been between 40 and 41 hours, chairside hours between 33 and 34 and laboratory and

Enquête de 1963 sur la profession dentaire

7. Temps consacré à l'exercice de la profession

Bureau des recherches économiques

Comme pour les enquêtes précédentes sur la profession dentaire, la semaine de travail du dentiste en 1963 a été divisée en trois catégories d'activités professionnelles, les heures passées auprès du patient, les heures passées en laboratoire et les heures passées à tenir à jour les dossiers, à interpréter les radiographies et à préparer les traitements.

LE DENTISTE MOYEN TRAVAILLE 41 HEURES PAR SEMAINE

En moyenne, le dentiste canadien travaille 41 heures par semaine. Quatre-vingts pour cent de son temps, ou 33 heures, se passent auprès du patient et 20 pour cent ou huit heures se divisent également entre le laboratoire et ses autres tâches professionnelles.

Le total des heures de travail et la division de ces heures en trois catégories d'occupation n'ont pas changé pendant les 10 dernières années. Les heures de travail

TABLE 1 Hours per week that the dentist spends in his practice • Heures hebdomadaires que le dentiste passe dans son cabinet.

Chairside	33	Auprès du patient
Laboratory	4	En laboratoire
Other	4	Autres
Total	41	Total

other duties have each taken three to four hours.

Provinces. — In the province having the highest average number of hours worked per week, dentists worked seven hours longer than in the province with the lowest average. The average for Quebec dentists was 43 hours; for Newfoundland dentists, it was 36. Nova Scotia dentists worked 42 hours, dentists in New Brunswick, Ontario and Manitoba averaged 41 hours and dentists in the three westernmost provinces spent 40 hours per week in their practices. The average number of hours worked per week in Prince Edward Island was 39 hours.

Chairside hours ranged from 30 per week in Newfoundland to 35 hours in Nova Scotia and Quebec. As a percentage of total hours, they varied from 80 to 85 per cent. Quebec dentists spent both the greatest number of hours (five) and the largest percentage of total hours (12 per cent) in the laboratory. Newfoundland dentists spent 11 per cent of their time in the laboratory. Dentists in other provinces spent two to four hours or five to 10 per cent of total time working in the laboratory. Dentists in all provinces except Newfoundland spent either three or four hours a week in other activities. Newfoundland dentists devoted only two hours (6 per cent of their professional time) to professional duties other than work at the chairside or in the laboratory.

City Size. — When analysed by city size, total hours worked varied from 40 to 43 hours. On the average, dentists in cities of less than 30,000 people worked one hour more per week than dentists in cities of over 30,000. Dentists who lived in communities of less than 2,500 inhabitants spent more hours and a greater percentage of their time in the laboratory

se sont maintenues entre 40 et 41 heures, les heures auprès du patient entre 33 et 34 heures et les heures de laboratoire et des autres tâches entre trois et quatre heures respectivement.

Provinces. — Dans la province qui atteint la plus forte moyenne d'heures de travail par semaine, le dentiste travaille sept heures de plus que dans la province qui a la plus basse moyenne. La moyenne est de 43 heures pour le dentiste du Québec et de 36 heures pour le dentiste de Terre-Neuve. Le dentiste de Nouvelle-Ecosse passe 42 heures par semaine dans son cabinet, ceux du Nouveau-Brunswick, de l'Ontario et du Manitoba, 41 heures et ceux des trois provinces de l'Ouest 40 heures. La moyenne des heures de travail par semaine est de 39 heures dans l'Île du Prince-Edouard.

Les heures passées auprès du patient varient entre 30 par semaine à Terre-Neuve et 35 en Nouvelle-Ecosse et au Québec. Elles représentent de 80 à 85 pour cent du total. Le dentiste du Québec est celui qui passe le plus grand nombre d'heures (cinq) et le plus fort pourcentage du total des heures (12 pour cent) dans son laboratoire. Le dentiste de Terre-Neuve y passe 11 pour cent de son temps. Les dentistes des autres provinces passent deux à quatre heures, soit 5 à 10 pour cent de leur temps de travail dans le laboratoire. Les dentistes de toutes les provinces, sauf Terre-Neuve, consacrent trois ou quatre heures par semaine aux autres activités. Le dentiste de Terre-Neuve n'accorde que deux heures (6 pour cent) de son temps aux tâches professionnelles autres que le travail sur patient ou en laboratoire.

Catégories de villes. — Le total des heures de travail varie de 40 à 43 heures suivant l'importance des villes. Le dentiste des villes de moins de 30,000 habitants travaille en moyenne une heure de plus par semaine que le dentiste des villes qui dépassent 30,000 habitants. Le dentiste qui habite une localité de moins de 2,500 habitants passe plus d'heures et un plus grand pourcentage de son temps en laboratoire que le dentiste des villes plus importantes.

than did dentists living in larger cities.

Age. — The number of hours worked a week tended to fall as the age of the dentist rose. The average dentist under 25 worked 44 hours per week while dentists of 60 or more years worked 38 hours or less. Chairside hours decreased after dentists reached the age of 50. Dentists between 25 and 49 years of age spent an average of three hours per week in the laboratory; dentists under 25 or over 49 years spent a greater amount of time working in their laboratories. All dentists, except the 75 and over group, spent four hours a week performing other duties related to dental practice.

Year of Graduation. — Dentists who had been in practice 30 or more years had shorter work weeks than dentists who had graduated within the past 30 years. The 1963 graduates and those dentists who graduated before 1939 spent the most hours in the laboratory.

Type of Practice. — The average number of hours worked a week by all specialists combined was the same as the average for general practitioners—41 hours. Orthodontists and periodontists worked longer hours (42 and 43 hours per week respectively). Oral surgeons and orthodontists spent less hours at the chair and more in the laboratory than periodontists. All three types of specialists spent longer hours performing other office duties than did general practitioners.

The average number of hours worked in a week by specialists was greater in the 1963 survey than in the two previous surveys. The increase was due to an increase in the number of hours listed under 'other.'

50 PER CENT OF ALL DENTISTS PRACTISE OVER 48 WEEKS A YEAR

The average dentist worked 47 weeks in 1963. One half of all dentists, however, worked more than 48 weeks. The median number of weeks worked was 48 in the 1953 and 1958 surveys too.

Dentists in all provinces in the eastern

Age. — Les heures de travail hebdomadaire tendent à décroître à mesure que le dentiste avance en âge. Le dentiste de moins de 25 ans travaille en moyenne 44 heures par semaine alors que le dentiste de 60 ans et plus travaille 38 heures, ou moins. Les heures passées auprès du patient diminuent quand le dentiste dépasse 50 ans. Le dentiste qui a entre 25 et 49 ans passe en moyenne trois heures par semaine en laboratoire. Celui qui a moins de 25 ans ou plus de 49 ans y passe plus de temps. Tous les dentistes, sauf ceux qui dépassent 75 ans consacrent quatre heures de leur semaine aux autres tâches professionnelles.

Année de graduation. — Les dentistes qui ont exercé pendant 30 ans ou plus ont une semaine de travail plus courte que ceux qui ont débuté au cours des 30 dernières années. Ceux qui ont gradué en 1963 ou avant 1939 passent plus de temps en laboratoire.

Genre de pratique. — La moyenne des heures de travail hebdomadaire de tous les spécialistes ensemble est égale à la moyenne des omnipraticiens: 41 heures. L'orthodontiste et le périodontiste travaillent plus (42 et 43 heures respectivement). Le chirurgien buccal et l'orthodontiste passent moins de temps auprès du patient et plus de temps en laboratoire que le périodontiste. Ces trois spécialistes consacrent plus de temps aux autres tâches de bureau que l'omnipraticien.

La moyenne des heures de travail hebdomadaire des spécialistes est plus forte dans l'enquête de 1963 que dans les deux enquêtes précédentes. Cette hausse est due à une augmentation des heures consacrées aux 'autres tâches.'

CINQUANTE POUR CENT DES DENTISTES TRAVAILLENT PLUS DE 48 SEMAINES PAR AN

Le dentiste moyen a travaillé 47 semaines en 1963, mais la moitié de tous les dentistes a travaillé plus de 48 semaines. Le nombre médian des semaines de travail était aussi de 48 pour les enquêtes de 1953 et de 1958.

half of Canada except Newfoundland worked 48 weeks a year; all provinces in the western half averaged 47 weeks in the year.

With one exception, dentists in all city sizes worked 47 weeks. Dentists in communities of less than 1,000 people worked two weeks less.

Dentists between 25 and 35 worked 48 weeks in 1963. Averages for older dentists were less—46 for dentists 60 to 64 years, 45 for dentists 65 to 69, and 44 for dentists 70 to 74. Generally, the older the dentist was and the longer he had been in practice, the fewer weeks he worked in a year.

The average number of weeks worked was the same for dentists in solo practice and cost-sharing arrangements (47 weeks) but was one week less (46 weeks) for dentists in partnerships. The latter may have been able to arrange more easily to be absent from their practices.

Orthodontists were the only specialists who practised as many weeks in the year as did general practitioners. The average number of weeks worked was 45 for oral surgeons and 46 for periodontists. One half of the periodontists, however, practised more than 48 weeks.

HOURS WORKED PER YEAR, GROSS PER CHAIRSIDE HOUR, NET PER HOUR WORKED

In 1963, the average dentist spent 1,924 hours in professional practice.

For each hour spent at the chairside, the dentist received \$16.80 from his patients. For each hour he worked—at the chair, in the laboratory and in other aspects of his practice—the dentist earned after expenses (but before income tax) \$7.91.

Provinces. — Dentists in Quebec and Nova Scotia worked the most hours (2,000 and more) and earned the smallest net incomes per hour (just over \$6.00). Dentists in Newfoundland were at the other extreme working 1,665 hours and netting \$9.66 per hour.

The pattern formed by comparing provincial gross and net hourly earnings was a familiar one; the three most western

Dans toutes les provinces de la moitié est du Canada, sauf Terre-Neuve, le dentiste travaille 48 semaines par an; dans les provinces de la moitié ouest, la moyenne est de 47 semaines par an.

Dans toutes les catégories de villes, le dentiste travaille 47 semaines, à l'exception du dentiste des localités de moins de 1,000 habitants qui travaille deux semaines de moins.

Les dentistes âgés de 25 à 35 ans travaillent 48 semaines. Pour les dentistes plus âgés, les moyennes sont inférieures—46 semaines entre 60 et 64 ans, 45 entre 65 et 69 ans, 44 entre 70 et 74 ans. En général, plus le dentiste est âgé, et plus il a exercé longtemps, plus il diminue ses semaines de travail dans l'année.

La moyenne des semaines de travail est la même pour le dentiste qui exerce seul et celui qui partage les frais (47 semaines), mais elle est inférieure (46 semaines) pour le dentiste associé. Celui-ci peut sans doute s'absenter de son cabinet plus facilement.

L'orthodontiste est le seul spécialiste qui travaille autant de semaines dans l'année que l'omnipraticien. La moyenne des semaines de travail est de 45 pour le chirurgien buccal et de 46 pour le périodontiste. Cependant, la moitié des périodontistes travaillent plus de 48 semaines.

HEURES DE TRAVAIL PAR ANNÉE, REVENU BRUT PAR HEURE AUPRÈS DU PATIENT, REVENU NET PAR HEURE DE TRAVAIL

Le dentiste moyen a passé 1,924 heures à exercer sa profession en 1963.

Pour chaque heure passée auprès du patient, le dentiste en reçoit \$16.80. Pour chaque heure de travail — auprès du patient, en laboratoire, et à d'autres tâches — le dentiste gagne, après déduction des frais mais avant de déduire l'impôt, \$7.91.

Provinces. — Les dentistes du Québec et de la Nouvelle-Ecosse sont ceux qui travaillent le plus grand nombre d'heures (2,000 et plus) et reçoivent le revenu net par heure le plus bas (dépassant juste \$6.00). À l'autre extrême, les dentistes de Terre-Neuve travaillent 1,665 heures pour un revenu net de \$9.66 de l'heure.

provinces, Newfoundland and Ontario were again in the top five. These same provinces except Ontario were also among the five provinces working the shortest hours.

City Size. — The number of hours worked tended to decrease very slightly as city size increased while gross and net income per hour generally rose with the size of the city. Both gross and net hourly figures fell, however, for dentists living in the largest cities. The averages for dentists in cities of over 500,000 were below the national average.

Age. — Dentists in the 25 to 29 years age group worked 1,997 hours in 1963. The number of hours worked declined with each succeeding age group. The decline was fairly gradual until the age of 50; thereafter, it was more rapid. Dentists over 65 averaged less than 1,700 hours per year.

The average gross income per chair-side hour and net income per hour worked rose until the 35 to 39 years age cohort was reached. At this age, dentists grossed \$18.45 for every hour they spent at the chair and netted \$8.79 for every hour they worked. Averages for older

Une image familière se dessine en comparant les gains horaires nets et bruts des provinces; les trois provinces de l'Ouest, Terre-Neuve et l'Ontario sont encore les cinq premières. Ces mêmes provinces, sauf l'Ontario, sont aussi parmi les cinq provinces qui comptent le moins d'heures de travail.

Catégories de villes. — Le nombre d'heures de travail tend à diminuer très légèrement lorsque la taille de la ville augmente, mais les revenus horaires nets et bruts augmentent en général avec l'importance de la ville. Cependant les chiffres horaires nets et bruts retombent pour les dentistes des très grandes villes. Dans les villes de plus de 500,000 habitants les moyennes sont inférieures à la moyenne nationale.

Age. — Le groupe d'âge de 25 à 29 ans travaille 1,997 heures. Le nombre d'heures de travail décroît avec chaque groupe d'âge subséquent. La diminution est assez faible jusqu'à 50 ans, mais après elle s'accroît. Le dentiste de plus de 65 ans travaille moins de 1,700 heures par an.

Le revenu brut moyen par heure passée auprès du patient et le revenu net moyen

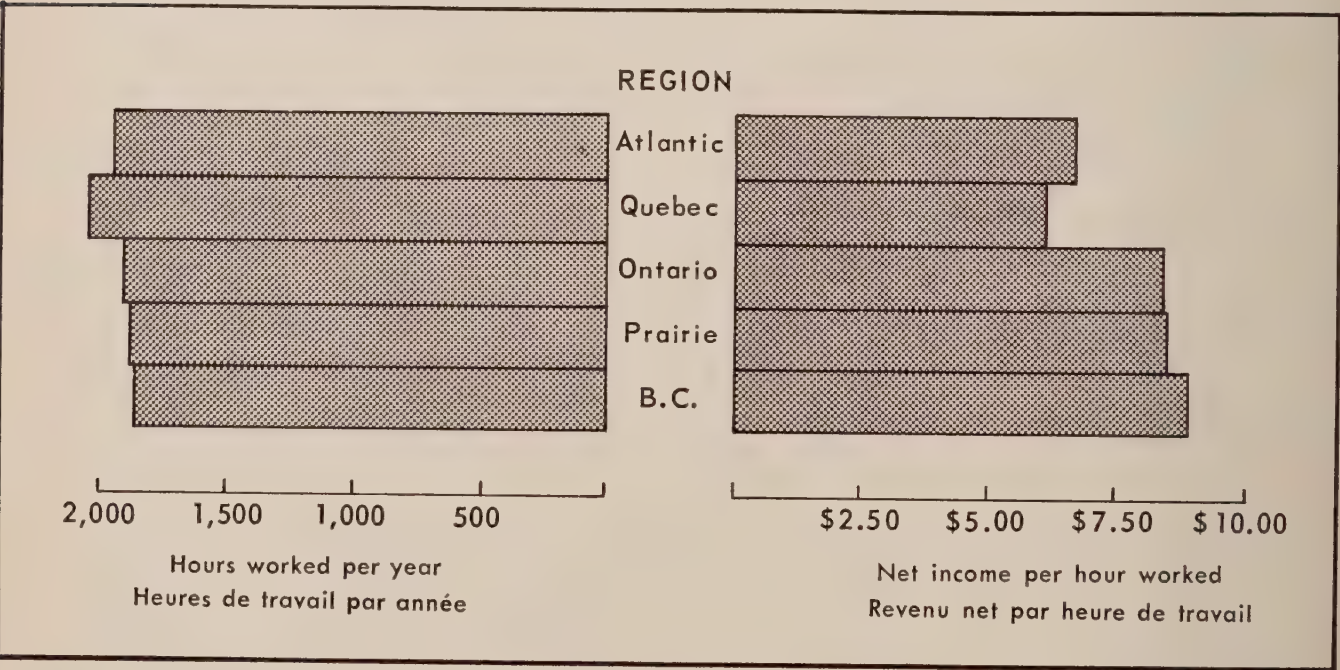


FIGURE 1 Dentists work 1,900 hours a year and earn \$8.00 per hour • Les dentistes travaillent 1,900 heures par année et gagnent \$8.00 par heure.

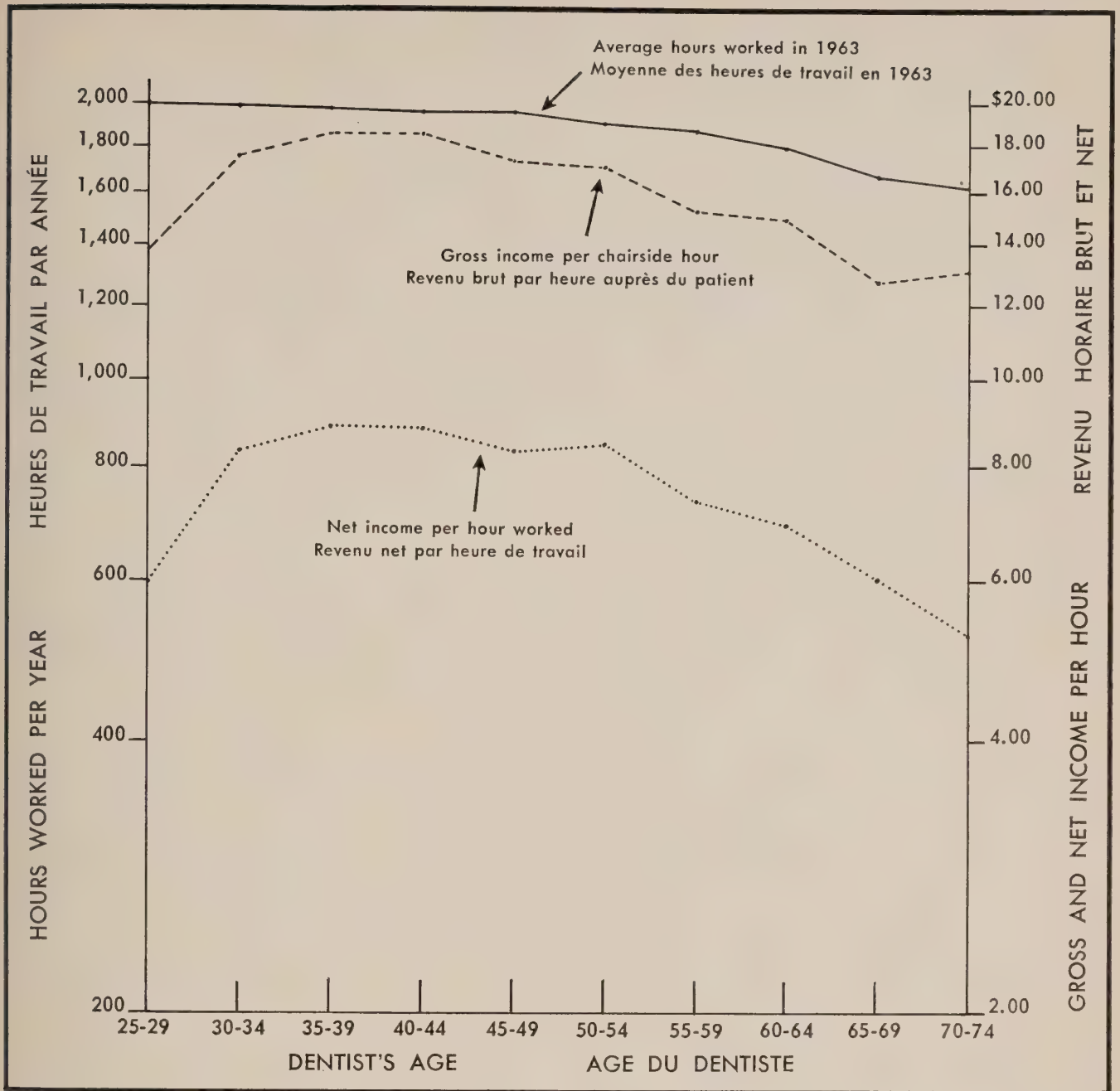


FIGURE 2 Hours and incomes are less for older dentists • Les heures de travail et les revenus diminuent pour les dentistes âgés.

dentists were less. Net incomes per hour worked declined at a much quicker rate than total hours worked. Between the age groups 50 to 54 and 65 to 69 years, for example, hours worked declined 13 per cent while net income per hour worked dropped 29 per cent.

Year of Graduation. — Averages of gross and net hourly earnings according to the number of years in practice rose for the first 10 to 14 years the dentist was in practice and then tended to fall as the number of years in practice increased.

par heure de travail augmentent jusqu'à ce que soit atteint le groupe d'âge de 35 à 39 ans. A cet âge, le revenu brut est de \$18.45 pour chaque heure passée auprès du patient et le revenu net de \$8.79 pour chaque heure de travail. Les moyennes sont plus basses pour les dentistes plus âgés. Le revenu horaire net diminue beaucoup plus vite que le nombre d'heures de travail. Par exemple, entre les groupes de 50 à 54 ans et de 65 à 69 ans, les heures de travail diminuent de 13 pour cent alors que le revenu horaire net tombe de 29 pour cent.

TABLE 2 Specialists' net income is \$10.50 per hour worked • Le revenu net des spécialistes est de \$10.50 par heure de travail.

Practitioner	Net income per hour Revenu net par heure	Praticien
General practitioner	\$8.00	Omnipraticien
Oral surgeon	11.00	Chirurgien buccal
Orthodontist	10.50	Orthodontiste
Periodontist	9.50	Périodontiste

Organization of Practice. — Dentists in solo practice worked fractionally longer hours than dentists in cost-sharing arrangements who in turn worked longer than dentists in partnerships. Gross income followed the opposite pattern being fractionally higher for those sharing costs than for dentists practising alone while those in partnerships made more than \$2.00 an hour more than dentists using either of the other methods of practice organization. Net income per hour was highest for those in partnerships but was a fraction higher for solo practitioners than for those sharing costs.

Type of Practice. — General practitioners spent 1,927 hours at their practices in 1963. Orthodontists and periodontists worked more hours than general practitioners (1,994 and 1,981 respectively) but oral surgeons worked considerably less (1,796). Gross income per chairside hour for all specialists combined was more than \$6.00 higher than the \$16.52 grossed by dentists in general practice. Net incomes per hour worked were \$2.00 to \$3.00 higher for specialists. Of the three specialties recognized by the Canadian Dental Association in 1963, the oral surgeons netted the highest hourly income (\$10.98) followed by the orthodontists (\$10.66) and the periodontists (\$9.71).

Extent of 'Busyness'. — Dentists who reported they received all people requesting appointments but felt too rushed or overworked worked more hours than dentists in the three other categories of 'busyness.' They worked an average of 2,035 hours in 1963 whereas dentists who

Année de graduation. — Par rapport au nombre d'années de pratique, les moyennes des revenus horaires bruts et nets augmentent pendant les 10 ou 14 premières années, mais diminuent ensuite à mesure que le nombre d'années de pratique augmente.

Organisation du cabinet. — Le dentiste exerçant seul travaille légèrement plus que le dentiste qui partage les frais et celui-ci travaille plus que le dentiste associé. Le revenu brut va en sens contraire, il est légèrement plus haut pour celui qui partage les frais que pour celui qui exerce seul et le dentiste associé gagne plus de \$2.00 par heure de plus que les dentistes dont le cabinet est organisé suivant les deux autres méthodes. Le revenu horaire net est le plus haut pour le dentiste associé, mais il est légèrement plus haut pour le dentiste exerçant seul que pour celui qui partage les frais.

Genre de pratique. — L'omnipraticien passe 1,927 heures à son cabinet. L'orthodontiste et le périodontiste travaillent plus que l'omnipraticien (1,994 et 1,981 heures respectivement) mais le chirurgien buccal sensiblement moins (1,796 heures). Le revenu brut de l'heure auprès du patient pour tous les spécialistes réunis se monte à \$6.00 de plus que les \$16.52 que gagne l'omnipraticien. Le revenu horaire net est de \$2.00 à \$3.00 plus haut pour les spécialistes. Le revenu horaire net des trois spécialités reconnues par l'ADC en 1963 est de \$10.98 pour le chirurgien buccal, de \$10.66 pour l'orthodontiste et de \$9.71 pour le périodontiste.

Assiduité. — Les dentistes qui reçoivent tous les patients demandant un rendez-vous mais qui se sentent trop bousculés ou surmenés travaillent plus que les dentistes des autres catégories d'assiduité. Ils travaillent en moyenne 2,035 heures par an, tandis que les dentistes qui se trouvent trop occupés pour accepter tous les patients travaillent 1,926 heures. Les revenus horaires bruts et nets de ces deux groupes sont à peu près les mêmes.

Les dentistes qui ne se trouvent pas assez occupés travaillent en réalité

said they were too busy to treat all people requesting appointments worked 1,926 hours. These two groups grossed and netted about the same amount of income per hour.

Dentists who felt they were not busy enough actually worked slightly more hours in the year than the dentists who said they had enough but not too many patients (1,874 versus 1,861), but the former group who wanted more patients grossed almost \$4.00 less and netted over \$2.00 less than the group who were satisfied with their patient load. While the national average net income per hour worked was \$7.91, the group of dentists who were not busy enough and would like to have had more patients netted only \$5.58. Their desire to be more busy seems, therefore, to result from their lower incomes rather than from their not working as many hours as other dentists.

VACATIONS, ILLNESS AND OTHER ABSENCE FROM PRACTICE

The average dentist took a four week vacation in 1963. Three-quarters of all dentists spent between two and five weeks on vacation, 9 per cent spent less than two weeks and 16 per cent spent over five weeks.

Fifty-three per cent of the dentists missed no time from their dental practices because of illness or disability. Twenty-nine per cent missed between one and five days, 15 per cent missed six to 29 days and 3 per cent missed 30 or more days. The mean average number of days absent was four.

The percentage of dentists who missed more than seven days of practice time because of ill health was slightly less in 1963 than in 1953 (13 per cent compared to 16 per cent).

The average dentist was absent from his practice for six days because of dental activities such as conventions, refresher courses, meetings, and so forth. One half of all dentists missed more than five days practice time for these reasons. Only 13 per cent of the dentists reported that they missed no time from their offices for dental activities.

légèrement plus que ceux qui ont assez de patients sans en avoir trop (1,874 heures contre 1,861), mais le premier groupe, qui désire plus de patients, a un revenu brut inférieur de \$4.00 et un revenu net inférieur de plus de \$2.00 aux revenus du groupe qui est satisfait de son nombre de patients. Alors que la moyenne nationale du revenu net par heure de travail est de \$7.91, le revenu net du groupe de dentistes qui n'est pas assez occupé et voudrait plus de patients est de \$5.58 seulement. Il semble donc qu'ils désirent être plus occupés non pas parce qu'ils travaillent moins que les autres, mais parce que leurs revenus sont plus bas.

VACANCES, MALADIES ET AUTRE MOTIFS D'ABSENCE

Le dentiste moyen prend quatre semaines de vacances. Les trois-quarts des dentistes prennent de deux à cinq semaines, 9 pour cent prennent moins de deux semaines et 16 pour cent prennent plus de cinq semaines.

Cinquante-trois pour cent des dentistes ne s'absentent pas de leur cabinet pour raison de santé. Vingt-neuf pour cent s'absentent de un à cinq jours, 15 pour cent de six à 29 jours, et 3 pour cent s'absentent 30 jours ou plus. Le nombre moyen des jours d'absence est de quatre.

Le pourcentage de dentistes qui se sont absentés de leur cabinet plus de sept jours pour raison de santé était légèrement moindre en 1963 qu'en 1953 (13 pour cent contre 16 pour cent).

Le dentiste moyen manque six jours à son cabinet pour activités professionnelles telles que congrès, cours de perfectionnement, réunions, etc. La moitié des dentistes manquent plus de cinq jours de travail pour ces raisons. Seuls 13 pour cent des dentistes déclarent qu'ils ne manquent aucun jour de travail pour occupations professionnelles.

Régions et provinces. — Les dentistes des cinq provinces de l'Est prennent en moyenne trois semaines de vacances tandis que ceux des cinq provinces de l'Ouest en prennent quatre. Apparemment les dentistes des provinces des

Region and Province. — Dentists in the five eastern provinces averaged three weeks vacation while those in the five western provinces averaged four. The healthiest dentists appeared to be those living in the Prairie provinces. They missed an average of only three days from practice because of illness. The average for British Columbia and the Atlantic provinces was four days; for Quebec and Ontario, it was five days.

Dentists in the Prairie provinces and British Columbia spent seven days during 1963 away from their practices because of dental activities; dentists in the Atlantic provinces and Ontario spent six and those in Quebec spent five days.

Age. — In general, the older the dentist, the more time he was absent from his practice either on vacation or because of illness. Dentists missing the most practice time because of dental meetings and courses were those between 40 and 55 years.

Year of Graduation. — Those dentists who had been in practice less than 10 years took three weeks vacation. Dentists in practice between 10 and 34 years took four weeks vacation while those in practice more than 35 years took five or six weeks holidays.

Organization of Practice. — Dentists in all three methods of organizing practice—solo practice, cost-sharing and partnership—spent the same number of weeks on vacation. Dentists in cost-sharing and partnership arrangements, however, spent one day more on extra-mural dental activities than did solo practitioners.

Type of Practice. — There was no difference in the length of vacations taken by general practitioners and specialists but dental activities caused specialists to be absent from their practices four days more than general practitioners. Specialists also had a higher mean average number of days absent due to illness. This was due to a few extreme values in the relatively small sample of specialists and is not considered significant.

prairies jouissent d'une meilleure santé. Ils n'ont perdu en moyenne que trois jours de travail pour maladie. La moyenne est de quatre jours pour la Colombie britannique et les provinces de l'Atlantique, de cinq jours pour le Québec et l'Ontario.

En 1963, les dentistes des provinces des prairies et de Colombie britannique se sont absentés sept jours de leur cabinet pour activités professionnelles; ceux des provinces atlantiques et de l'Ontario six jours et ceux de Québec cinq jours.

Age. — En général, plus le dentiste est âgé, plus il s'absente de son cabinet pour vacances ou pour raison de maladie. Les dentistes qui manquent le plus à cause de cours ou de réunions dentaires sont ceux qui ont entre 40 et 55 ans.

Année de graduation. — Les dentistes qui ont pratiqué moins de 10 ans prennent trois semaines de vacances; ceux qui ont pratiqué entre 10 et 34 ans en prennent quatre semaines, et ceux qui ont pratiqué plus de 35 ans en prennent cinq ou six semaines.

Organisation du cabinet. — Quelle que soit l'organisation de son cabinet — indépendante, à frais partagés ou en association — le dentiste prend le même nombre de semaines de vacances. Cependant le dentiste qui partage les frais ou qui est associé s'absente un jour de plus que celui pratique seul pour activités professionnelles à l'extérieur.

Genre de pratique. — Le spécialiste prend des vacances de même durée que l'omnipraticien, mais il s'absente de son cabinet pour activités professionnelles quatre jours de plus que lui. La moyenne des jours d'absence pour raison de maladie est aussi plus forte chez le spécialiste, mais ce fait est sans importance car il est dû à quelques chiffres extrêmes pour un nombre assez bas de cas étudiés.

Ce communiqué est un résumé de l'Enquête de 1963 sur la profession dentaire, publiée par le Bureau des recherches économiques.

This report is condensed from the *Survey of Dental Practice, 1963* published by the Bureau of Economic Research.

les actualités dentaires

L'Association

Projet de conférence sur la technologie dentaire

L'ADC sera invitée à tenir une conférence pour discuter des sujets suivants: création d'un organisme national pour les techniciens de laboratoire, accréditation des programmes de formation pour les techniciens, amélioration de la condition économique et du niveau d'instruction des techniciens, accréditation des laboratoires dentaires, collaboration entre la profession dentaire et les techniciens dentaires.

Cette proposition, qui a été recommandée à la réunion du 25 mars du Comité des services auxiliaires de l'ADC, sera soumise au Conseil des Gouverneurs lors de sa réunion annuelle en juin à Halifax. Si le Bureau approuve cette recommandation, chaque membre corporatif devra inviter à la conférence un représentant d'un organisme provincial de techniciens dentaires ou d'un organisme de propriétaires de laboratoire. Le Conseil d'Education dentaire devra aussi déléguer un représentant.

D'autre part, le Comité propose:

— Que les membres corporatifs de l'ADC établissent un service de prothèse adéquat et complet pour répondre aux besoins de la population à faible revenu et pour empêcher les empiètements des techniciens clandestins.

— Que les membres corporatifs amendent leurs règlements de façon à permettre aux hygiénistes dentaires d'accomplir des tâches supplémentaires que certains d'entre eux autorisent déjà.

— Que les membres corporatifs demandent aux écoles d'hygiène dentaire d'inclure dans leurs programmes ces tâches nouvelles.

Le Comité approuve également le principe d'un système de certification nationale pour les assistantes dentaires, et propose que le Conseil d'Enseignement rédige une déclaration déterminant les exigences minimales pour les cours de formation des assistantes dentaires.

Don de l'ADC pour l'inauguration du nouvel édifice de l'ADA

Le Secrétaire de l'Association dentaire américaine, le Dr Harold Hillenbrand a remercié tous les membres de l'Association dentaire canadienne pour la contribution que l'ADC vient d'offrir au Fonds des Beaux Arts de l'ADA. Ce don, pour célébrer l'inauguration du nouveau siège social de l'ADA à Chicago, a été envoyé à la demande du Conseil exécutif de l'ADC.

Dans une lettre adressée au Président de l'ADC, le Dr P. S. Christie, le Dr Hillenbrand a exprimé sa reconnaissance pour ce don qui "symbolise les relations très étroites qui existent entre les associations et nos deux pays."

Canada

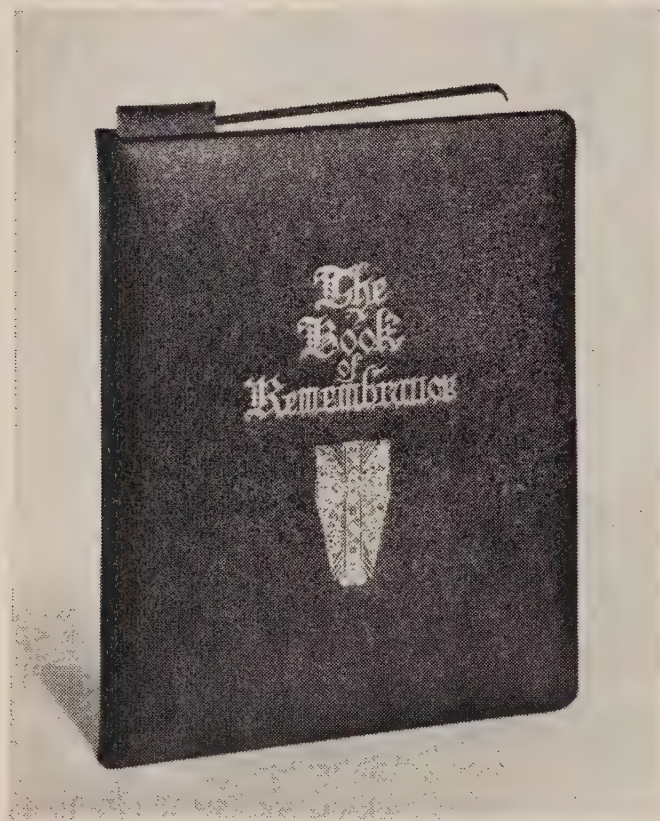
Interprétation nouvelle relative aux frais de déplacement

Le *Telegram* de Toronto du 17 mars a publié un communiqué indiquant que les frais de déplacement d'un dentiste qui exerce dans une localité et est chargé de cours à l'université d'une autre localité ne sont pas déductibles du revenu imposable.

Le dentiste qui donne des cours est considéré comme employé temporaire de l'université et par conséquent ne bénéficie pas de déductions pour frais de déplacement.

La dentisterie hospitalière pourrait prendre un nouveau visage en Nouvelle-Ecosse

La dentisterie hospitalière se trouvera profondément transformée en Nouvelle-Ecosse si la législature adopte au cours



Les dons 'Living Memorial' faits au Fonds canadien pour l'enseignement dentaire constituent à la fois un moyen d'honorer la mémoire d'un disparu et d'oeuvrer pour l'avenir. Le nom de la personne en l'honneur de laquelle la contribution est offerte demeurera inscrit dans un Livre du Souvenir que le FCED conserve dans la bibliothèque de l'Association dentaire canadienne. Le président du FCED, le docteur J. D. McLean a montré le livre au Dr L. P. Lepine (assis, deuxième à gauche) et aux autres curateurs du FCED lors de leur réunion des 21 et 22 mars. On peut envoyer les dons 'Living Memorial' au secrétaire du FCED, 234 rue St-Georges, Toronto 5, Ontario.

de la présente session les amendements projetés au provincial Public Health Act.

Les lois en vigueur ne permettent qu'aux médecins de faire admettre un patient dans un hôpital public. Le Ministre de la santé, l'Honorable R. A. Donahoe, a déposé un projet de loi contenant un amendement qui permettrait à un dentiste de demander, en collaboration avec un médecin, l'hospitalisation d'un malade.

Un autre amendement demande que soient prévus des locaux pour accueillir les étudiants dentaire dans les hôpitaux publics tout comme cela se fait pour les étudiants en médecine.

Un troisième amendement donne au

cabinet provincial le droit de réglementer les avantages que les hôpitaux enseignants doivent accorder aux étudiants dentaires comme c'est le cas actuellement pour les étudiants en médecine.

Le Fonds pour l'enseignement accorde cinq bourses d'une valeur de \$5,750

Le Fonds canadien pour l'enseignement dentaire a octroyé deux bourses nouvelles pour la formation de professeurs. Les bénéficiaires en sont le Dr M. E. Mickelborough, d'Edmonton, qui reçoit \$1,200 et le Dr K. H. Wright, de Montréal, qui reçoit \$1,500.

Le Dr Mickleborough se préparera à enseigner la chirurgie buccale. Le Dr Wright a choisi d'enseigner la périodontie.

Des bourses d'une valeur de \$3,050 ont été renouvelées pour trois boursiers du FCED. Il s'agit des docteurs V. N. Direnfeld et G. A. Zarb, de Toronto, et R. C. McClelland, d'Edmonton.

Le Fonds pour l'enseignement a de nouveau accordé un don de \$500 à chaque faculté dentaire canadienne. L'emploi de cette somme est laissé à la discrétion des doyens.

Le FCED a été institué en 1962 pour soutenir l'enseignement dentaire, venir en aide aux facultés dentaires, créer des bourses et des prêts aux étudiants et aider à recruter des étudiants pour les facultés dentaires canadiennes. On peut se renseigner sur les bourses pour la formation des professeurs en écrivant au secrétaire du FCED, 234 rue St-Georges, Toronto 5, Ontario.

Un directeur de l'Association des hôpitaux recommande des liens plus étroits avec la profession dentaire

Un directeur de l'Association des hôpitaux canadiens a proposé que l'ADC soit invitée à désigner un représentant suprême de la direction de l'association nationale des hôpitaux.

Le docteur H. S. Jamieson, de Moosomin, dans la Saskatchewan, a formulé cette suggestion lors de la réunion de février des directeurs de l'AHC à Toronto. Le Dr Jamieson, dentiste en exercice, est président de l'Association des hôpitaux de la Saskatchewan et directeur de l'AHC.

Le Dr Jamieson a fait remarquer que l'Association des hôpitaux de la Saskatchewan avait récemment invité le Collège des Chirurgiens-dentistes de la Saskatchewan à désigner un représentant auprès du comité des standards de médecine et d'infirmerie, l'un des cinq principaux comités du corps hospitalier provincial. Il a encouragé les autres associations dentaires à nouer des contacts semblables avec les organismes hospitaliers nationaux et provinciaux afin d'établir des liens plus étroits entre les deux groupes. Ces liens sont d'autant plus importants, a déclaré le Dr Jamieson, que la profession dentaire

a tendance à demander plus de lits dans les hôpitaux.

Chronique internationale

Conférence dentaire internationale à Athènes

Une conférence internationale sur la dentisterie préventive se tiendra du 20 au 24 juillet à Athènes, en Grèce. Le programme sera organisé par la Société dentaire d'Athènes en collaboration avec l'Association dentaire panhellénique. Pour tout renseignement sur la conférence, écrire au Dr M. Neamonitakis, 8-10 rue Nikitara, Athènes 142, Grèce.

Congrès dentaire à Paris en novembre

Les dentistes canadiens ont été invités à participer au 39ème congrès annuel des Journées Dentaires Internationales de Paris, du 21 au 27 novembre. Des séances scientifiques auront lieu à la Maison de la Chimie.

Cette année le congrès s'intéressera plus particulièrement aux domaines de la spécialisation en chirurgie dentaire. La traduction simultanée en quatre langues permettra aux dentistes étrangers de prendre part aux réunions.

Pour tous renseignements supplémentaires, écrire à M. André Leprette, Secrétariat Général des JDIP, 16 rue des Renaudes, Paris 17e, France.

Facultés dentaires canadiennes

Des collégiens de l'Ontario visitent la Faculté de Toronto

Un groupe de collégiens de quatre comtés ontariens ont pu se familiariser avec l'enseignement dentaire moderne en visitant la Faculté dentaire de Toronto les jeudi 14 et vendredi 15 avril. Les étudiants venaient des High Schools régionaux des comtés de Durham, d'Ontario, de Peterborough et de Victoria.

Après la visite de la Faculté d'Art

dentaire le jeudi après-midi, les étudiants ont été les hôtes à dîner du Comité de l'hygiène dentaire publique de l'Ontario Dental Association au Hart House de l'Université de Toronto. Ils ont ensuite été hébergés pour la nuit par des dentistes de Toronto.

Ces visites de collégiens à la Faculté de Toronto font partie du programme de recrutement dentaire de l'Ontario. Elles sont organisées par le Comité d'hygiène dentaire publique de l'ODA en collaboration avec la faculté torontoise.

Congrès régionaux

La date du "Fall Clinic" de Montréal est devancée

Le Montreal Dental Club annonce que sa clinique d'automne 1966 aura lieu une semaine plus tôt qu'à l'ordinaire. Les nouvelles dates, qui remplacent les dates publiées dans le Journal de mars à la page A18, sont: 22 et 23 octobre pour le séminaire précédant le congrès; 24 au 26 octobre pour le 'Fall Clinic.'

Pour tous renseignements supplémentaires, s'adresser à Miss M. Komarnicka, 4166 Ste Catherine Ouest, Westmount, Que.

Economie

Les maladies dentaires en troisième place

D'après un article de R. Kohn, paru dans le numéro janvier 1966 du *Canadian Journal of Public Health*, les maladies dentaires viennent au troisième rang des problèmes de santé au Canada.

M. Kohn, qui a été assistant-directeur des recherches pour la Commission royale d'enquête sur les services de santé, établit son calcul d'après le pourcentage des sommes dépensées pour les services de santé consacrés aux soins dentaires.

On estime que les soins dentaires ont coûté aux Canadiens en 1961 \$118.8 millions soit 8 pour cent du total des dépenses en services de santé. Les dépenses occasionnées par les maladies mentales, avec \$370 millions ou 24 pour cent du total des

dépenses, et pour les maladies de l'appareil respiratoire, avec \$121.7 millions, se classent avant les dépenses pour soins dentaires.

Nouvelle échelle d'honoraires en Nouvelle-Ecosse

L'Association dentaire de Nouvelle-Ecosse a distribué une échelle d'honoraires révisée à tous les dentistes de la province. Cette nouvelle échelle est entrée en vigueur le 1er janvier.

L'échelle de Nouvelle-Ecosse adopte la terminologie de la liste de référence des soins dentaires et les principes du système de valeur relative établis par l'Association dentaire canadienne.

La Nouvelle-Ecosse devient ainsi la cinquième province à réviser ou à modifier son échelle d'honoraires d'après ces principes.

Les plans dentaires pré-payés couvrent près de deux millions d'Américains

L'Association dentaire américaine annonce que 1,872,845 Américains sont couverts par des plans dentaires pré-payés organisés par des groupes privés, dans 30 états, dans le district de Columbia et à Porto-Rico.

Les compagnies de service dentaire, organisées par les sociétés dentaires des états, assurent le plus grand nombre de groupes. Elles couvrent 378,629 personnes. Les compagnies d'assurance commerciales couvrent le plus grand nombre de personnes: 550,399. Les organisations de groupe ou cliniques assurent 616,369 personnes. Les compagnies d'assurance sans but lucratif assurent 128,717 personnes.

La plupart des plans fournissent une assurance complète. Près de la moitié, couvrant plus d'un million de personnes, sont organisés par les employeurs et les associations d'employés.

L'assurance commerciale s'est énormément développée au cours des derniers mois. Ce genre de programme couvre plus d'un demi-million de personnes soit six fois plus qu'il n'en couvrirait il y a six mois, et environ 30 pour cent des personnes couvertes par un plan pré-payé aux Etats-Unis.

Federal Health Minister Predicts Prepaid Dental Care for All Canadians

The Minister of National Health and Welfare has reiterated his government's intention to launch a medical services insurance scheme by July 1, 1967 as the initial phase of a comprehensive system of prepaid, publicly administered health insurance for all Canadians. Health Minister A. J. MacEachen made the remark in a speech delivered to the Hamilton Academy of Dentistry April 20.

The Minister explained that Ottawa is taking two major first steps: first, to ensure that Canadians have access to the best possible medical care, when they need it and without regard to their ability to pay, and, secondly, to ensure that the country has the facilities and personnel to provide these services on a universal basis.

Mr. MacEachen reminded his audience that these are the minimum first steps and that the government's overall objective applies to health services generally, including dental services.

He did not say when a comprehensive dental service program, covering all or most of the population, might eventuate. Instead, he voiced support for an evolutionary approach beginning with systematic incremental treatment for young children and accompanied by intensive dental health education, water fluoridation and other preventive measures which reduce the increment of disease and help to increase the treatment capacity of the profession.

Referring to Ottawa's \$500 million health resources fund, the Minister indicated that a fair share of this money will go toward increasing and improving dental personnel and training facilities. In addition, he added, new and better ways of detecting, treating and preventing dental diseases and oral handicaps must be found through intensified research.

Mr. MacEachen acknowledged the provinces' constitutional responsibility in health matters but asserted that federal authorities also have obligations in this area. He observed that "Good health is a national goal and the federal government has a responsibility to initiate, encourage and support programs and safeguard the health of Canadians generally."

The Association

Executive Has Special Joint Session with ADA

The Association's Executive Council held a joint session, May 12-13 in Toronto, with the Board of Trustees of the American Dental Association. This was the third joint meeting with ADA officials. The first was held in Toronto six years ago; the second meeting was held in Chicago September 6-7, 1963.



The CDA Executive Council and the American Dental Association's Board of Trustees considered mutual problems at a two day conference in Toronto May 12-13. This was the third joint meeting of the executive groups of the national dental associations.

Among the topics discussed by Canadian delegates were the CDA Statement on the Royal Commission on Health Services, the current status of dental mechanics in Canada and related dental laboratory technician problems, principles for a total health care program enunciated by the Canadian government, services of dental auxiliaries, the Royal College of Dentists of Can-

ada, the relative value method of fee determination, and retirement savings plans.

American representatives dealt with programs for elderly and handicapped patients, prepayment programs, dental auxiliaries, specialization, operation of the ADA's Washington office, accreditation of dental laboratories, evaluation and ap-



CDA President-elect J. P. Coupland (foreground) listens attentively to a presentation by an American delegate.

The conference agenda is reviewed by (l. to r.) CDA President P. S. Christie, ADA Secretary Harold Hillenbrand, CDA Secretary W. G. McIntosh and ADA President M. K. Hine.



proval of programs for dental materials, therapeutic agents and devices, regional dental organizations in the Americas, and a national children's dental health care program.

Representing the Canadian Dental Association were P. S. Christie, Halifax, president; J. P. Coupland, Ottawa, president-elect; Rémy Langlois, Quebec City, past president; W. P. Munsie, Vancouver; H. R. MacLean, Edmonton; W. G. Bruce, Kincardine, Ontario; G. M. Dewis, Halifax, treasurer; W. G. McIntosh, Toronto, secretary; R. A. Clappison, Toronto, chairman, Dental Services Committee; A. H. Crowson, Ottawa, chairman, Council on Legislation; James McCutcheon, Montreal, chairman, Council on Education; K. J. Paynter, Toronto, chairman, Council on Research; G. C. Swann, Calgary, chairman, Auxiliary Services Committee; M. A. Rogers, Montreal, chairman, Specialists and Specialization Committee; Col. G. R. Covey, RCDC School, Camp Borden; R. A. Connor, Ottawa, chief, Dental Division, Department of National Health and Welfare; O. J. Yule, Toronto, member, Board of Governors; D. W. Gullett, Toronto; H. W. Reid, Toronto; Mr. J. T. Staddon, Toronto, administrator of CDA insurance

and retirement plans; F. H. Compton, editor; K. L. Croft, deputy secretary; and Mrs. Isabel Brown, director of economic research.

Ottawa Reduces Equipment Depreciation Write-Off Rate: CDA Protests

Capital cost allowance write-off rates on dental equipment are to be cut in half under new income tax regulations introduced with the federal budget on March 29. The new regulations reduce from 20 per cent to 10 per cent the customary depreciation rate on class 8 dental equipment. The new rate applies to all equipment purchased between now and October 1, 1967.

Canadian Dental Association Secretary W. G. McIntosh has protested against the move as one that will introduce an additional hurdle in the path of the young graduate who must equip a new practice. In a letter dated April 7, Dr. McIntosh asked Finance Minister Mitchell Sharp to exclude class 8 dental equipment from the new regulations. The complete text of Dr. McIntosh's letter follows:

We ask that dental equipment normally included in asset class no. 8 be excluded from the new income tax regulation which "reduces the capital cost allowances that may be claimed for various classes of capital assets acquired during the period between now and October 1, 1967." This request is made to try to prevent regulations which are likely to discourage dentists from properly equipping or expanding their offices, and thereby reduce potential contribution to the dental health of the Canadian community.

Reducing the capital cost allowance from 20 per cent to 10 per cent on dental equipment purchased within the next 18 month period, results in a significant additional tax hurdle to the dentist who needs to buy new equipment during this period.

It particularly affects the recent graduates whose average cost of setting up a modern office is \$12,000, at least \$10,000 of which is

for equipment.

It is the opinion of this Association that dentists should be encouraged to set up modern clinical facilities in their offices, and whenever the demand for services warrants, to establish a second operatory so that the high demand for dental services can be more nearly met. It has been established that when dentists install a second operating room, their patient load can be increased by 65 per cent — a significant contribution to Canada's present shortage of dentists.

Millions of dollars are being spent in Canada to build new dental schools and to educate more dentists. Regulations that impede the new graduates from rendering a maximum service seem illogical and contradictory.

Your favourable consideration of this amendment is respectfully requested. W. G. McIntosh, DDS, secretary.

Special Report

Manitoba Legislature Committee

"Dentists should retain full control of and be fully responsible for the oral health of the public." This conclusion emerges from the 163 page final report of a Special Committee of the Manitoba legislature which investigated "the role of dental technicians and denturists (mechanics) in the provision of dental services in Manitoba" for the past two years. Provincial Health Minister C. H. Witney, who was chairman of the committee, tabled the report on April 5.

"Dental appliances are . . . necessary aids to life and health . . . [that] must be properly fabricated, correctly administered and fitted . . .," says the report. It asserts that "the responsibility for prescribing and fitting of dentures should remain with dentists who are educated and trained to adequately perform the professional functions involved."

The committee contended that only qualified persons should work in patients' mouths. It also urged that existing mechanics be brought under the provisions of a proposed Manitoba Dental Technicians Act (to be administered by the provincial

health department) and that they be absorbed as auxiliaries into the dental health field. Their experience should be utilized but they should be qualified through training programs for dental hygienists and dental technicians, the committee recommended.

The report also calls for prohibition of the term 'denturist' which the committee regards as misleading because it implies a status, skill and knowledge equivalent to or higher than that possessed by dentists.

The report also urged that the University of Manitoba be responsible for the development of training programs in all fields of oral health regardless of whether instruction is given in university facilities or in technical training facilities.

The report advocates the development of an expanded curriculum in dental hygiene including instruction in (1) all duties currently assigned to the dental hygienist in Manitoba; (2) all duties in the area of complete denture prosthesis, excluding diagnosis, treatment planning, mouth preparation and overall responsi-

International Items

President Johnson Suggests Dental Care Program for Children

President Lyndon B. Johnson has directed the US Department of Health, Education and Welfare to explore the possibility of federal assistance for financing a dental care program for children. This was disclosed in a speech which the President delivered in San Antonio April 8. He did not specify who would be covered in the children's program or how it would be financed.

Commenting on the President's proposal, the American Dental Association observed that its House of Delegates last year called for development of a national program for children, particularly the needy and underprivileged, in order to make the benefits of modern dental health service available to all children of the United States.

"It is gratifying to have the President give recognition to this major health problem and to the profession's interest in solving it," the ADA said, adding that the association looks forward to working with administration officials in developing an

Proposes Legalization of Mechanics

bility to the patient for the service (to be assumed by the dentist); and (3) certain additional duties related to the placing of filling material in teeth. On completion of this course the hygienist would operate under the supervision of a dentist.

The committee also proposed that the Faculty of Dentistry of the University of Manitoba develop an adequate training program for dental technicians in consultation with the provincial society of dental technicians.

In other recommendations, the committee asked the Manitoba Dental Association to:

Publish and distribute a fee schedule and advise patients of the existence of its Mediation Committee for settlement of disputes over fees or services performed; and

Institute a procedure whereby impressions would only be taken by dentists or their qualified and supervised auxiliaries. If patients wish, their complete dentures could then be fabricated by dental technicians of the patients' choice on prescrip-

tion from dentists. In such cases, the dentures would be returned to dentists for fitting and adjustment. At no time would dental technicians fit or adjust dentures or work in the mouth; and

The Manitoba Dental Association was also asked to expand the facilities of the present Manitoba denture clinic in Winnipeg; institute similar services elsewhere in the province as required; and advertise the availability of low cost denture services as in British Columbia.

Recommendations in this final report adhere to the pattern of the committee's interim report which was tabled on May 6, 1965 (and described on pages 472-3, July 1965 issue of the Journal).

During its two year investigation the committee held public hearings or met with interested parties in Winnipeg, Regina, Edmonton, Vancouver and Toronto. Its findings and recommendations were based on information gathered at these meetings as well as from other foreign and domestic sources of published information.

effective and realistic national children's dental care program.

Dental Organizations

Niagara Dentists Discuss Agitation by Mechanics

Renewed agitation by dental mechanics for changes in the Dentistry Act of Ontario sparked a lively discussion at the April 22 meeting of the Niagara Peninsula Dental Association at Fort Erie. The members voiced the opinion that:

Dentists should deal only with fully accredited and ethical dental laboratories;

Local dental societies should discuss the problem locally with their members of the Ontario Legislature; and

Dentists should write accurate and complete prescriptions, demand a high standard of service from dental laboratories, and pay a just fee for this service.

R. A. Connor, chief of the Dental Health Division, Department of National Health and Welfare, Ottawa, was the guest speaker. Dr. Connor reminded his audience about the importance of gathering accurate data on the dental health of the nation, the effective demand for treatment and the utilization of personnel. He asked for the co-operation of St. Catharines dentists in a study which the federal department is undertaking.

K. I. Carroll, Port Colborne, was elected president. He succeeds G. R. Goodine of St. Catharines. Other officers are B. Blackstien, Niagara Falls, vice-president; and F. C. Hebert, Port Colborne, secretary.

Northern Manitoba Dentists Attend Preventive Seminar

Some dentists from as far afield as Flin Flon and Thompson, Manitoba, travelled more than 250 miles in order to attend a preventive dentistry seminar at the Swan River Hospital on April 23. The meeting was organized by the recently formed Northern Manitoba Dental Society. The seminar portion, with C. R. Castaldi of the University of Manitoba as the featured

essayist, was sponsored by the provincial department of health. The 17 dentists in attendance also heard an address by R. D. Glenn, Winnipeg, president of the Manitoba Dental Association.

Canadian Dental Schools

Calendar of Canadian Refresher Courses in this Issue

In the announcements section of this issue, for the first time, the Journal publishes a list of short postgraduate and refresher courses available at Canadian dental schools during the next nine months. The Journal hopes to publish an up-dated table periodically, perhaps twice a year. In future issues the form of the table may undergo some modification and improvement in order to present the essential information on all courses.

Fluoridation

Federal Health Minister Endorses Fluoridation

Fluoridation has received the federal government's stamp of approval. In the words of federal Health and Welfare Minister A. J. MacEachen, fluoridation is "the most important preventive measure" in any realistic dental health program.

"This is the most effective, safest and least costly method of reducing the need for dental care," he told the Hamilton Academy of Dentistry on April 20.

This reduction, he said, is necessary to achieve "a balance between the increase of dental disease in the population and the capacity of treatment services to cope with it." It constitutes an important step toward a comprehensive dental care insurance program which he forecast for the 1980's.

The Minister's remarks may represent the first official federal government statement endorsing fluoridation as a policy although his predecessor, Miss Judy LaMarsh, had expressed approval of it.

Deaths

- Brown, Henry T. 65. Upper Melbourne, P. Quebec. McGill University, 1924. 20-3-66.
- Bryant, Edward George. 63. Chemainus, British Columbia. North Pacific College, University of Oregon, 1925. 15-4-66.
- Buchanan, George Arthur. 64. Winnipeg. University of Toronto, 1929. 8-4-66.
- Canning, Oscar Wellington. 78. Toronto. Royal College of Dental Surgeons of Ontario, 1912. 1-5-66.
- Cashin, Herman Joseph. 34. Sydney, Nova Scotia. Dalhousie University, 1958. 11-4-66.
- Cote, Louis Julius. 61. Ottawa. University of Toronto, 1932. 31-3-66.
- Graham, Joseph Robert. 75. Salmon Arm, British Columbia. Royal College of Dental Surgeons of Ontario, 1923. 5-4-66.
- LeBlanc, Jules A. 73. Caraquet, New Brunswick. Tufts University, 1916. 30-3-66.
- Marquis, Walter Alexander. 71. Winnipeg. Registered under Provincial Act (Manitoba), 1917. 15-4-66.
- McDowell, Kenneth. 71. Renfrew, Ontario. Royal College of Dental Surgeons of Ontario, 1917. 8-4-66.
- Morin, Roger. 46. Bellechasse, P. Quebec. Université de Montréal, 1949.
- Wright, Roy Arthur. 72. Toronto. Royal College of Dental Surgeons of Ontario, 1919. 24-4-66.

library • bibliothèque

Additions • Acquisitions

- ACKERMAN, L. V. Surgical pathology. Ed. 3. St. Louis, Mosby, 1964. 1244 p. illus. \$20.25
- BATTLE, R. Plastic surgery. London, Butterworths, 1964. 416 p. illus. \$22.00
- BERESFORD, J. S. Orthodontic diagnosis. A dental practitioner handbook No. 4. Bristol, John Wright & Sons Ltd., 1965. 79 p. illus. \$1.90
- BEVELANDER, G. Essentials of histology. Ed. 5. St. Louis, Mosby, 1965. 329 p. illus. \$7.05
- COPPOLINO, C. A. Practice of hypnosis in anesthesiology. New York, Grune & Stratton, 1965. 204 p. \$7.05
- CROSS, W. G. Gingivitis. A dental practitioner handbook No. 2. Bristol, John Wright & Sons Ltd., 1965. 44 p. illus. \$1.75
- KETTERING LABORATORY, CINCINNATI. Fluoride abstracts, 1963-1965. Supplement to: Annotated bibliography The occurrence and biological effects of fluorine compounds. Vol. 1: The inorganic compounds. Prepared by I. R. Campbell and I. P. Kukainis. Cincinnati, 1965. 93 p.
- KILLEY, H. C. and LAY, L. W. The impacted wisdom tooth. Edinburgh, Livingstone, 1965. 107 p. illus. \$3.00
- KLARMAN, H. E. The economics of health. New York, Columbia University Press, 1965. 200 p.
- McCARTHY, P. L. and SHKLAR, G. Diseases of the oral mucosa; diagnosis, management therapy. The Blakiston Division. Toronto, McGraw-Hill Co., 1964. 372 p. illus. \$17.35
- PENNINGTON, G. W. Dental pharmacology. Oxford, Blackwell Scientific Publications, 1965. 158 p. \$6.00
- PRICHARD, J. F. Advanced periodontal disease. Philadelphia, Saunders, 1965. 573 p. illus. \$21.60
- SAYWELL, J. ed. Canadian annual review for 1964. Toronto, University of Toronto Press. 531 p. \$15.00
- TIECKE, R. W. Oral pathology. New York, The Blakiston Division, 1965. 873 p. illus. \$24.40
- TURK, D. C. and PORTER, I. A. A short textbook of microbiology. Philadelphia, Saunders, 1965. 292 p. illus. \$3.80

Periodontal Disease in Adults, United States, 1960-1962

US Department of Health, Education and Welfare. National Center for Health Statistics. Vital and Health Statistics. PHS Publication No. 1000, Series 11, No. 12.

This report gives the first solidly based national estimates of the prevalence and severity, by age, sex, for the white and Negro populations, of inflammatory disease of the tissues and structures that surround and support the teeth. The data were collected in 1960-62 by physical examinations of a probability sample of persons 18-79 years of age representative of the US civilian, non-institutional population.

Degree of disease was evaluated by Russell's Periodontal Index, obtained by averaging scores for each tooth that can range from 0 to 8. The index does not discriminate between types of periodontic disease, and depends on indications discernible to the eye.

Of the country's approximately 110 million adults more than 20 million no longer had any teeth. About one out of four of the remainder had destructive periodontic disease. About two out of four had gingivitis, which develops into the former when the inflammatory process penetrates to the deeper tissues supporting the teeth and forms 'pockets.' About one out of four adults exhibited no signs of gingivitis or the more severe periodontitis.

Only about 10 per cent of men or of women aged 18-24 show periodontic disease in its more severe form. Thereafter it develops more rapidly in men than in women. At 45-54 years, for example, 37 per cent of men and 30 per cent of women exhibit periodontitis; at 65-74 years, 58 per cent of men and 33 per cent of women. The mean periodontic score for men was 1.34 as compared with 0.93 for women. Negroes had a mean score of 1.60, as compared with 1.06 for the white population.

The occurrence of periodontic disease varied inversely with family income and with education. Each variable is independently associated with the disease, and the correlation is higher with education than with income. The inverse relationship with each variable is more apparent in men than in women. The occurrence of periodontic disease in white and Negro men with com-

parable educational attainment did not differ significantly. The higher periodontic scores for Negro as compared with white women, however, cannot be accounted for entirely by differences in educational attainment.

F. E. Linder

Silver Amalgam in Clinical Practice

I. D. Gainsford. Bristol, John Wright & Sons Ltd., 1965. (Available from The Macmillan Co. of Canada Ltd., Toronto) 79 p. Illus. \$2.50

This is the first in a new series of handbooks covering a variety of dental subjects and published in England. The book is produced in paper back form. The mechanical binding leaves much to be desired.

Most certainly silver amalgam and its use in dentistry is one of the most frequently discussed topics in the field of dental materials. The author's stated purpose is to discuss, within the framework of fundamental principles of cavity preparation, the techniques of restoring teeth with silver amalgam, taking into consideration recent research in dental histology, histopathology, periodontology, and dental materials.

The book is very concise, being composed of only 65 pages. It contains five chapters on historical background, cavity preparation, lining of amalgam restorations, matrices, and silver amalgam manipulation. The author has done rather well at presenting the variations in cavity preparation suggested by numerous other writers. While one may not agree with all of Gainsford's conclusions, he presents a good review of the principles of cavity preparation for the reception of amalgam restorations.

The remaining chapters are composed of descriptions of basic operative theories and practices as applied to silver amalgam and its use in present day dental practice. The author's reference list contains the names of most of the authorities in this field. The book is a concise, easily read condensation of current concepts on silver amalgam and its clinical use. It constitutes a good review of the topic for the general practitioner of dentistry.

H. J. MacConnachie

The swamp where dwells a many-headed serpent

In a swamp near the well of Amymone there dwelt a horrible water serpent called the Hydra. Whenever one of its ugly heads was cut off a couple at once sprang up in its place, unless the stump was seared with fire. The second labour of Herakles was to destroy this monster. He had the advantage on this occasion of a helping hand from his young kinsman, Iolaus, who, as fast as the hero lopped off the Hydra's heads, thrust a red-hot iron against the stump.

To the World War II scarcity of civilian dentists add the number of citizens who sought but failed to obtain dental care during 1939-45; stir in a surplus of army trained dental technicians who could not be fully absorbed into post-war civilian practice; add to these ingredients the growing number of citizens who are concerned about their health and well-being; add also a deteriorating postwar dentist-population ratio. Now distil this heady concoction with a generous measure of latent antiprofessional feeling. Finally, season the broth with a few smart legislative lobbyists and a sprinkling of alert politicians who recognize a tasty issue when they see one. The result: a muddy mixture of outright illegal practice and legalized operations by dental mechanics that has bedevilled Canadian dentistry for nigh on 30 years.

With single-minded zeal the dental mechanic pursues his objective: the right to fabricate and provide directly to the public any kind of removable oral prosthetic appliance. His tactics are superb. He employs full-time or part-time organizers and lobbyists in several provinces. He leaves no stone unturned to gain access to service clubs, boards of trade, labour organizations and political parties of every shade. He has been particularly adept at winning the support of the elderly who wield significant political influence in our society. In many provinces he offers to make free denture repairs for old age pensioners and he takes great pains to see that his 'services' are widely advertised. He poses as a champion of the common folk, a Sir Galahad who is determined to shatter the monopoly of the wicked dental profession. Behind this facade he cultivates the sympathy of the credulous who will listen to his tale and who, in turn, will make his cause their own.

The gist of the mechanic's message is elemental: his dentures cost only half of what a dentist charges; his services are superior because he 'specializes' in his field; by doing what he does, he claims that he frees dentists for other services which require a higher degree of skill; and he caps all this by parading assorted satisfied clients before sundry legislative committees. In this milieu he concentrates upon private members rather than cabinet ministers. His

cause has prevailed when it was supported by a mere handful of backbenchers. Although the majority of legislators appear to be uncommitted, more often than not they have proved susceptible to arguments of the mechanic and his allies when the chips are down.

The profession, for its part, traditionally retaliated by vigorously opposing any legislation which would permit anyone other than the fully qualified dentist to deal directly with the public. Dentists buttressed this view with voluminous testimony about the biological requirements of treatment and the attendant hazards of permitting untrained hands to tamper with the human mouth. This position is undoubtedly correct but it did not deter the legislators of British Columbia and Alberta from clothing the mechanics of those two provinces with a mantle of legality.

In a bold new departure, the dentists of British Columbia in 1961 proposed that dental mechanics be given further training so as to equip them to deal — in association with and supervised by a dentist — directly with the public. This attempt failed because the mechanics were already too securely entrenched and because the government dreaded the political consequence of any attempt at depriving them of their business. But when the dentists and the provincial dental school of Manitoba advanced a similar proposal last year, it was largely accepted by a special committee of that province's legislature.

Another positive reaction is reflected in the denture clinics which the profession established, first in Manitoba in 1961, and subsequently in British Columbia in 1965. Staffed by qualified dentists, these clinics provide a low cost professional denture service to anyone regardless of income. Although these clinics have met with a mixed reception within the profession, supporters claim that the denture clinic effectively parries the economic arguments of the mechanics and their cohorts. Whether this is really so remains to be seen.

One thing is clear: independent practice by dental mechanics presents an intolerable hazard to the public health as well as a patent invitation to the dismemberment of dental practice. Patients who require dentures are entitled to the diagnostic and scientific skills which only a qualified dentist possesses. If it can be shown that other technical procedures in prosthodontics can be properly performed by persons with lesser training — well and good. But in that event it becomes mandatory that these procedures be executed only in association with and under the direct control and supervision of the dentist who must retain complete responsibility for the entire service. Such an arrangement would conform to the adopted policies of the Canadian Dental Association.^{1,2}

Dental mechanics already work legally in British Columbia and Alberta. A New Zealand-trained dental nurse has also been legally employed in the Yukon Territory. It is therefore imperative that we explore all the possibilities inherent in the Association's current policies on dental auxiliaries.^{1,2} This should be done with the least delay in order to forestall any further fragmentation of the practice of dentistry. The hour is late. Time is running short.

1. Canadian Dental Association. Policy statement: Projection of dental services in Canada.
2. Idem. Policy statement on auxiliary personnel.

La priorité des soins dentaires

Les lois sanitaires accordent, en principe, pour le traitement des malades, la 'priorité' aux professions médicales, cela par rapport aux diverses catégories de 'guérisseurs.' Les adversaires des titulaires de diplômes médicaux ou mieux encore de la 'médecine officielle' considèrent que cet état de fait constitue en réalité un monopole, car il les empêche d'exercer leur activité. Mais une telle priorité sous-entend que les porteurs de diplômes réguliers prennent la responsabilité d'assurer le traitement de l'ensemble de la population. Bien qu'il n'existe pas de contrats collectifs d'assurances régissant et réglementant dans notre pays les soins dentaires sur le plan social, nous disposons cependant et heureusement d'autres moyens pour parvenir à dispenser des soins suffisants en quantité et en qualité.

Le fait que le programme des études médico-dentaires soit réglementé par la loi constitue pour le public une certaine garantie, à propos d'une formation professionnelle satisfaisante; cependant, il n'existe pas de garantie à propos de la manière dont les connaissances acquises au cours des études sont appliquées dans la pratique courante! Un examen professionnel ne fournit aucune appréciation au sujet des qualités morales d'un individu et n'empêche pas que certains praticiens deviennent des 'outsiders' qui sont malheureusement et souvent considérés, sur le plan politique, comme des représentants parlant au nom de la profession. Ces individus prennent souvent une attitude démagogique susceptible de nuire considérablement au principe de notre priorité pour traiter des malades.

Quels sont ces types d'individus? Sont-ils uniquement ceux qui, par un travail inévitablement médiocre, ont la prétention de rendre des services réels en prodiguant des soins à 30-40 patients par jour? Ne devrions-nous pas nous frapper la poitrine lorsque nous assistons avec plus ou moins d'indifférence ou d'inertie à cette situation d'une disproportion croissante entre le besoin en soins et le nombre de praticiens disponibles? Cet état de faits est précisément celui qui, un jour ou l'autre, incitera à retirer ce 'privilège' à ceux disposant aujourd'hui de la priorité pour donner les soins. Les vrais responsables sont ceux qui ignorent tout de la prophylaxie et ne prennent pas la peine de réduire dans la mesure du possible le développement de lésions plus ou moins étendues. A ce point de vue, chaque praticien porte sa part de responsabilité et doit contribuer à améliorer la situation, s'il est vivement désireux de lutter pour le bon renom de sa profession. Il trouve à sa disposition toute une série de moyens, parmi lesquels il peut exercer un choix en fonction de la situation qu'il occupe.

Le 'volume' des soins peut être efficacement réduit par l'application des principes suivants:

— Education et orientation des jeunes mères à propos de l'origine de la carie chez les enfants (distribution de feuillets, utilisation de personnel auxiliaire, interventions directes des praticiens)

— Education des patients au sujet des causes de la carie et de l'importance de l'hygiène dentaire

— Institution de soins de propreté et de détartrages, réguliers et systématiques, ce qui prolonge sensiblement la durée des restaurations dentaires

— Dépistage des troubles occluso-articulaires et des irritations marginales du parodonte dans le but de prolonger la durée de la denture

— Interventions 'préventives' sur le plan public, en particulier chaque praticien dans son secteur d'habitation (organisation de services d'orientation prophylactique, causeries, communiqués dans la presse locale)

Par ailleurs, le rendement du travail peut être sensiblement amélioré par:

— La rationalisation: séances de traitement prolongées, établissement de plans thérapeutiques adéquats, simplification des techniques opératoires, standardisation de l'instrumentation et de certains gestes thérapeutiques

— L'emploi de personnel auxiliaire au fauteuil, le 80 pour cent du travail du praticien étant souvent absorbé par des gestes de transport qui pourraient être efficacement réalisés par ce personnel

— La transmission d'une partie de l'activité (comme c'est le cas pour les médecins) à du personnel auxiliaire qualifié; il s'agit en particulier de l'orientation des patients, de leur éducation hygiénique, du contrôle de la pratique de l'hygiène, des soins de nettoyage et de détartrage, de la prise des radiographies, des applications topiques de fluor, etc.

Pour réaliser un tel programme, trois conditions sont nécessaires:

— Etre convaincu de l'importance des soins prophylactiques

— Elargissement de l'équipe de travail

— Perfectionnement professionnel ininterrompu

Notre politique professionnelle ne doit pas se laisser influencer ou intimider par des menaces, car la peur n'a jamais été l'instrument du progrès. La crainte paralyse les initiatives, engendre la réticence à l'égard des nouveautés, empêche de s'aventurer sur des terrains nouveaux et inexplorés.

Sans esprit d'entreprise, d'autres continents n'auraient jamais été découverts, l'aéronautique n'existerait pas, les cosmonautes ne seraient pas apparus, l'intellect ne se serait pas émancipé à l'égard de certaines croyances paralysantes. Ce qui importe, c'est l'action et le dépassement du 'conventionnel', phénomènes sans lesquels le progrès ne saurait exister.

(Adapté de l'allemand par A.-J. Held)

Cet éditorial a d'abord paru dans le numéro de février 1966 de la *Revue mensuelle suisse d'Odontostomatologie*.

letters • courrier

Should Subsidize the Journal

To the Editor:

I found your editorial in the April issue (Obstacles in the Path to an Ancient and Honourable Goal) very informative and I am sure all members of the [Nova Scotia Dental] Association did likewise. You presented the situation clearly and provocatively and the members who are interested will kick the

problem around in their minds.

Several solutions are possible but the Journal must continue as a unifying force and a 'voice,' so to speak, of the CDA. Therefore subsidization in some form must take place from the CDA treasury. Perhaps my 'solution' is much oversimplified, but there it is.

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Améloblastome calcifié: rapport d'un cas

Calcified ameloblastoma: a case report

J. N. Fontaine, DDS, Claude Madore, DDS et
Zdenek Mézl, MD, DDS, Montréal, P. Québec

Cet article décrit un améloblastome calcifié. Cette tumeur est certainement d'origine odontogénique, car elle se rencontre toujours en présence d'une dent incluse. Tous les cas rapportés ont été décelés chez des hommes et toujours à la mandibule. Les résultats de l'examen microscopique se caractérisent par les constatations suivantes: de grosses zones épithéliales composées de cellules caractéristiques, et de nombreuses masses acellulaires calcifiées.

A case of calcified ameloblastoma in the lower right bicuspid region of a 59-year-old male is described. This odontogenic lesion, which is usually associated with an unerupted tooth, occurs in males and always in the mandible. Microscopically, the tumour contains extensive zones of epithelial cells interspersed with acellular calcified masses.

La littérature, à de nombreuses reprises, fait mention de tumeurs odontogéniques épithéliales; cependant, très peu d'auteurs, si ce n'est Thoma & Goldman,¹ Ivy,² Stoopack,³ Pindborg,⁴ et Chaudhry, Holte & Vickers,⁵ ont décrit des tumeurs odontogéniques épithéliales calcifiées n'ayant pas les caractères spécifiques d'un améloblastome ou d'un adamantinome.

On a donné à ces tumeurs différentes appellations: améloblastome atypique avec calcification, odontome composé kystique et tumeur odontogénique épithéliale calcifiante.

Pindborg,⁴ en 1958, rapporte trois cas de ce genre de tumeur. Il distingue deux types de tumeurs odontogéniques épithéliales: l'améloblastome ordinaire et une tumeur odontogénique épithéliale calcifiante. Le cas présenté appartient à cette dernière catégorie.

CAS ACTUEL

En septembre 1964, un patient J. D., 59 ans, de race blanche, est dirigé à la clinique par son dentiste pour le clivage

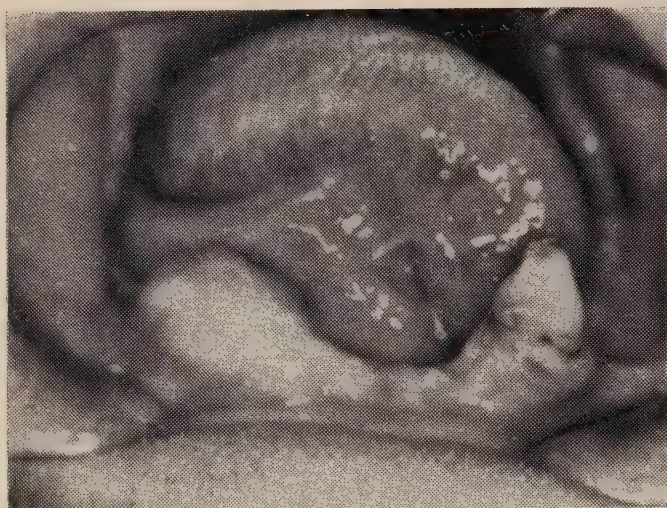


FIGURE 1 Apparence clinique.

d'une excroissance osseuse dans la région des prémolaires inférieures droites, en vue de la confection d'un appareil de prothèse complète. Quelques temps auparavant, le patient avait subi l'extraction de toutes ses dents inférieures à l'exception de la canine inférieure gauche.

L'examen clinique révèle une masse du volume d'une olive dans la région des prémolaires inférieures droites (Figure 1). La muqueuse recouvrant la lésion est de consistance normale. La couleur en est rosée. A la palpation, cette saillie est très dure. Le patient ne présente pas d'adénopathie. A l'extérieur, dans la région intéressée, l'os de la mandibule est plus gros que la normale. Aucune mobilité. Les tissus mous ne sont pas fixés à la tumeur. Le patient déclare n'avoir jamais ressenti de douleur à l'endroit précité.

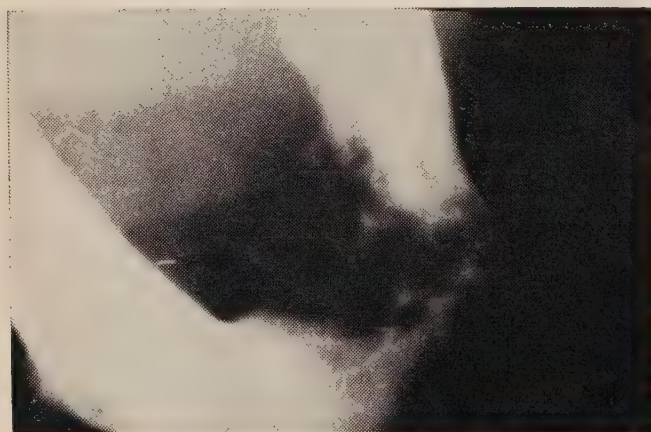


FIGURE 3 Radiographie latérale droite (2 mois, post-opératoire).

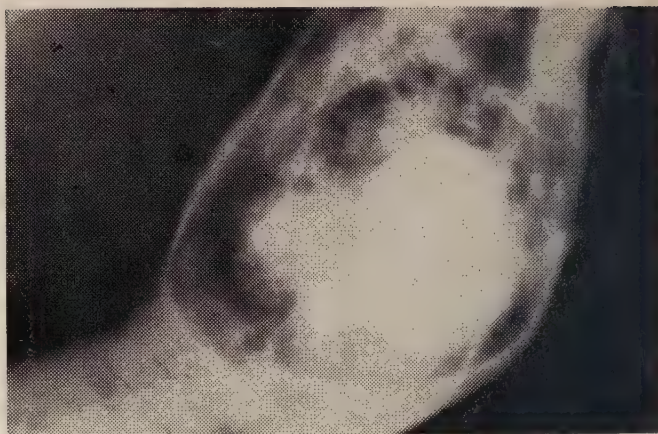


FIGURE 2 La radiographie occlusale montre la dent incluse située au centre de la lésion.

Selon lui, cette masse est apparue il y a environ 10 ans; elle grossit lentement depuis ce temps.

Un examen radiologique extra-oral et occlusal révèle une translucidité diffuse d'environ 4 centimètres de long par 3 centimètres de large. Cette masse s'étend de la région canine inférieure droite à la région de la deuxième molaire du même côté. Cette translucidité mandibulaire est caractérisée par une apparence miteuse, ainsi que par une zone radiopaque imprégnée de quelques petites cavités translucides intérieures. Au milieu de cette zone se loge une dent incluse dont la couronne est entourée d'une couche osseuse plus opaque. L'apex de cette dent incluse concourt à la déformation du bord inférieur de la mandibule (Figure 2). On établit le diagnostic radiologique d'odontome améloblastique.

En octobre 1964, l'intervention a lieu sous anesthésie locale. La crête est incisée sur son versant occlusal, de la région de la deuxième molaire droite jusqu'à la région de l'incisive latérale gauche. Le débridement de la muqueuse laisse voir un os très mince entourant la lésion elle-même. La paroi osseuse, contrairement à toute attente, est très peu épaisse et de faible consistance. Sous cette frêle couche osseuse, apparaît une membrane épaisse et solide.

L'exérèse de la tumeur s'élabore facilement, elle se détache d'une seule pièce, sans rupture de la membrane (comme le sac adamantin d'une dent en formation dans l'os). La cavité béante laisse voir facilement le nerf dentaire inférieur et

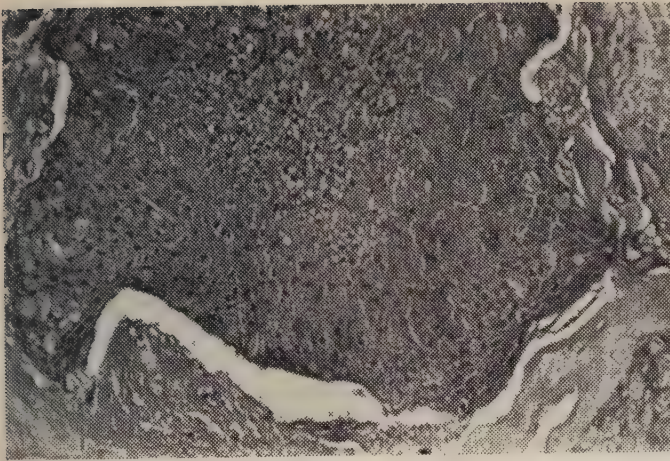


FIGURE 4 Une zone épithéliale caractéristique. Hématoxyline éosine, x 160.

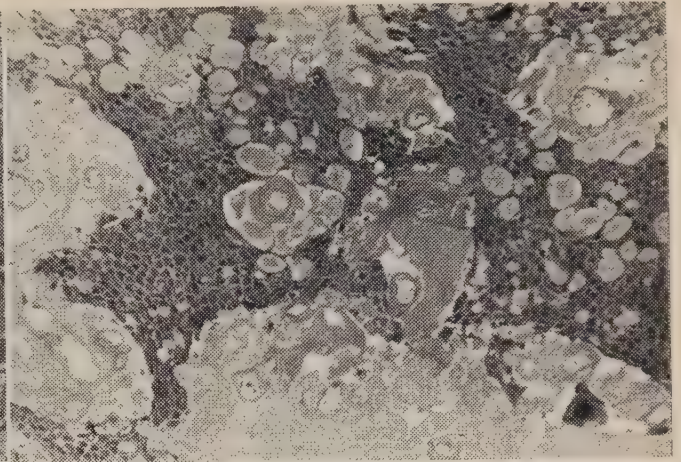


FIGURE 5 Une zone épithéliale avec des dépôts de substances homogènes. Hématoxyline éosine, x 160.

l'ouverture du trou mentonnier. La paroi osseuse, quoique très peu épaisse, a résisté à une fracture. La béance n'a pas à être curetée puisqu'elle est très propre et entourée d'un os lisse. La muqueuse est suturée hermétiquement à l'aide de soie 3-0, sans médication locale.

Le patient reçoit les médicaments suivants: ASA-caféine-codéine $\frac{1}{4}$ gr, aux 4 heures contre la douleur; sécobarbital sodium $1\frac{1}{2}$ gr, au coucher; tétracycline 250 mg, aux 8 heures.

Le spécimen est envoyé au laboratoire d'histo-pathologie.

En novembre 1964, soit 17 jours après l'intervention, toutes les sutures sont enlevées. La plaie est cicatrisée.

En décembre 1964, un examen radiologique de contrôle montre une large cavité translucide sans résidu radiopaque (Figure 3).

HISTO-PATHOLOGIE

Microscopiquement, la tumeur est composée de trois éléments: zones épithéliales considérables, stroma abondant et masses abondantes acellulaires calcifiées.

1. L'épithélium forme des zones larges dont l'aspect est varié.

Il y a des masses continues bien limitées de cellules polyédriques assez volumineuses, très caractéristiques, reliées entre elles par des filaments d'union très marqués (Figures 4-6). Exceptionnellement, on note quelques cellules d'un

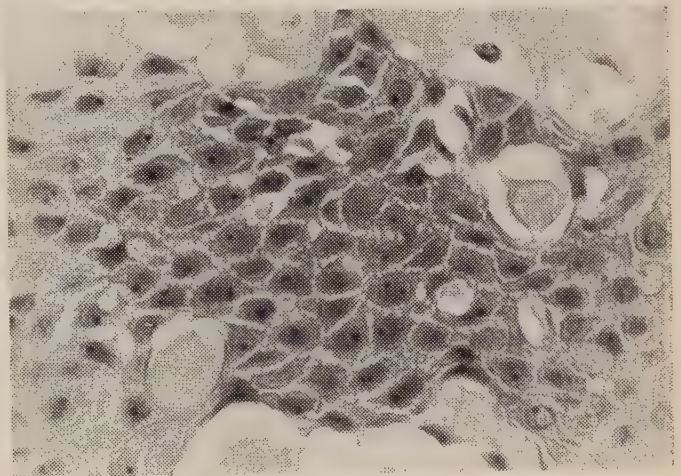


FIGURE 6 Les cellules épithéliales caractéristiques. Hématoxyline éosine, x 630.

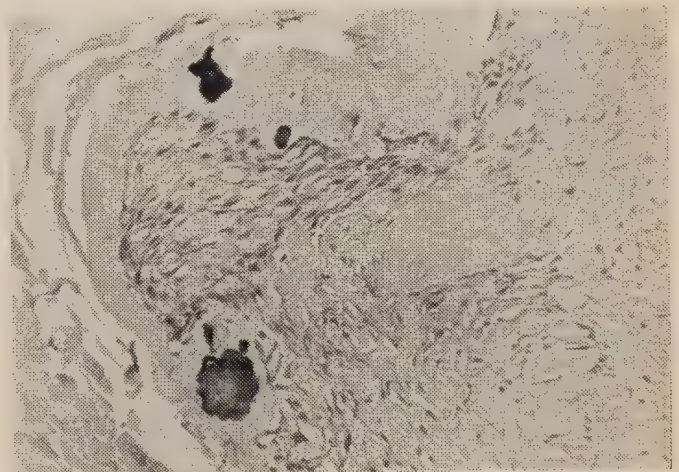


FIGURE 7 L'épithélium modifié avec des masses homogènes. Hématoxyline éosine, x 160.

volume plus grand, avec deux ou plusieurs noyaux. Dans la plupart des masses épithéliales, on note des dépôts de substances homogènes (Figures 5 et 6). Il y a des petits dépôts arrondis à l'intérieur de quelques cellules épithéliales.

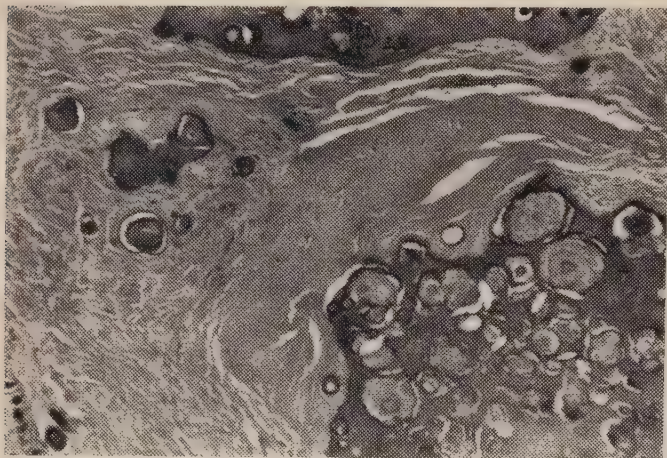


FIGURE 8 Des masses calcifiées, une zone hyalinisée. Hématoxyline éosine, x 160.

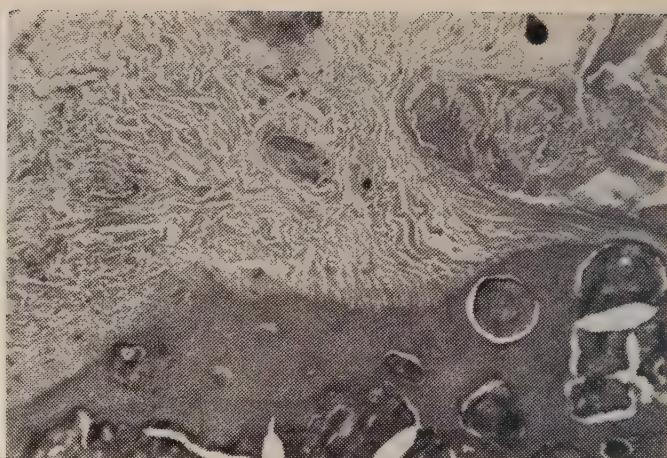


FIGURE 9 Des masses calcifiées entourées d'un tissu rappelant le ciment. Hématoxyline éosine, x 160.

Il y a aussi des dépôts arrondis plus grands qui semblent avoir remplacé ici et là une ou plusieurs cellules épithéliales. Quelques-unes de ces formations présentent des couches concentriques ayant un centre plus foncé, apparemment une calcification (Figure 7).

Il y a des zones où les masses homogènes grandes et nombreuses semblent avoir comprimé les cellules épithéliales d'une façon telle que l'aspect de l'épithélium est entièrement modifié (Figure 7). Les cellules sont séparées, fusiformes, étroites et aplaties.

Il y a des endroits où les masses confluent largement et il ne reste entre elles qu'un réseau faible, incomplet; des cellules tellement aplaties, que leur caractère épithélial n'est plus reconnaissable.

Il y a de grosses masses acellulaires présentant la même coloration que les dépôts décrits, souvent sans limites visibles entre l'épithélium, le dépôt, le stroma ou les substances calcifiées.

2. Le stroma est abondant, constitué soit d'un tissu fibreux dense, soit de zones hyalinisées avec fibres épaisses qui se mêlent graduellement avec les masses homogènes décrites ci-dessus (Figure 8).

3. Les masses calcifiées comprennent: des granules ronds très nombreux, fusiformes ou irréguliers, volume d'une cellule, jusqu'aux formations larges avec des couches concentriques ou formations résultant de la fusion de plusieurs granules (Figure 8). Tout ceci conflue pour donner des zones calcifiées, homogènes, volumineuses, surtout au centre

de la tumeur près de la dent. Les granules se trouvent et dans l'épithélium et dans le stroma.

Souvent les granules et les grosses formations calcifiées sont entourés d'un tissu acellulaire, qui est homogène et calcifié en profondeur. Près de sa surface, il est composé de fibres collagènes qui sont en continuité avec celles du stroma adjacent (Figure 9), rappelant le ciment fibrillaire avec les fibres de Sharpey; on note aussi en certaines parties, subissant apparemment une formation active, une couche pâle rappelant le cémentoïde et les cellules ressemblant aux cémentoblastes.

Il s'agit parfois d'une couche mince, parfois de plusieurs couches superposées, parfois d'une masse homogène très abondante qui contient au centre des masses calcifiées amorphes. Quelques endroits à la périphérie, montrent une ancienne résorption remplacée par un tissu osseux. Autour du collet de la dent, le tissu décrit se continue directement dans le ciment de la racine.

Dans la partie centrale de la tumeur se trouve une dent. La moitié apicale de la racine est absente; on note de profondes lacunes de résorption pénétrant la dentine, contenant du tissu osseux et adipeux. La pulpe présente une atrophie réticulaire modérée et de grands denticules. L'émail est complètement couvert; dans les parties cervicales, il est couvert par le ciment acellulaire qui est en continuité avec celui de la racine et celui de la tumeur. Le reste de la couronne

est entouré de masses calcifiées amorphes en grande quantité.

DISCUSSION

Il semble s'agir du processus pathologique suivant: l'épithélium de la tumeur subit une altération dégénérative qui mène à la formation de dépôts de substances homogènes amorphes. Ces substances subissent ensuite une calcification dystrophique. Le stroma réagit et entoure ces masses calcifiées d'un tissu correspondant au ciment (comme dans la formation de certains cémenticules).

Les grandes cellules polyédriques ressemblent à celles qu'on trouve à l'intérieur des zones épithéliales considérables de certains améloblastomes. Ici, elles forment à elles seules des zones épithéliales très caractéristiques.

La littérature a démontré l'origine dentaire de la tumeur; le cas présent montre les masses les plus calcifiées probablement les plus vieilles autour de la couronne. Ceci semble montrer une origine à partir de l'épithélium dentaire.

Le caractère particulier des cellules épithéliales présente un bel exemple des potentialités très variées de l'épithélium dentaire.

La tumeur a été décrite d'abord comme un améloblastome calcifiant, une fois comme un odontome kystique et récemment on s'efforce à introduire le nom de tumeur épithéliale odontogénique calcifiante ou tumeur de Pindborg.

Le nom odontome est incorrect; c'est une calcification dystrophique et non des tissus dentaires. Les tumeurs épithéliales odontogéniques sont généralement appelées améloblastomes; même les variétés où il n'y a aucune ressemblance avec des améloblastes.

Le nom 'améloblastome calcifié' exprime bien le caractère de la tumeur; il est aussi utilisé par des auteurs qui font école.

1. Thoma, K. H. et Goldman, H. M. Odontogenic tumors. A classification based on observation of the epithelial, mesenchymal, and mixed varieties. *Am. J. Path.* 22:433, 1946.
2. Ivy, R. H. Unusual case of ameloblastoma of mandible. Resection followed by restoration of continuity by iliac bone graft. *Oral Surg., Oral Med. & Oral Path.* 1:1074, 1948.
3. Stoopack, J. C. Cystic odontoma of the mandible. *Oral Surg., Oral Med. & Oral Path.* 10:807, 1957.
4. Pindborg, J. J. A calcifying epithelial odontogenic tumor. *Cancer* 11:838, 1958.
5. Chaudhry, A. P., Holte, N. O. et Vickers, R. A. Calcifying epithelial odontogenic tumor: report of a case. *Oral Surg., Oral Med. & Oral Path.* 15:843, 1962.
6. Thoma, K. H. et Goldman, H. M. *Oral pathology*. Ed. 5. St. Louis, Mosby, 1960.

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Date limite pour remboursements des frais dentaires des anciens prisonniers de guerre.
— Tout ancien prisonnier de guerre affligé de maladies dentaires attribuables à l'avitaminose ou autres affections connexes, aura jusqu'au 12 septembre 1966 pour réclamer les frais dentaires qu'il a encourus, à partir de mai 1962, a annoncé l'honorable Roger Teillet, ministre des Affaires des anciens combattants. Le ministre a également souligné que tout ancien prisonnier de guerre, ainsi que tout autre ancien combattant qui reçoit une pension d'invalidité ou, encore, tout ancien combattant qui en conserve les droits, bénéficiera désormais des traitements dentaires fournis par le ministère pour toute invalidité encourue durant son service. La décision d'inclure les droits de traitement pour maladies dentaires, et le remboursement des frais encourus à partir de mai 1962, a été prise à la suite d'une étude du rapport sur les invalidités et les problèmes des anciens combattants de Hong-Kong, soumis par la Commission canadienne des pensions. Tout traitement, à l'avenir, devra être autorisé, soit par le Médecin senior des traitements, ou par le Chef du service des traitements dentaires, du district en cause relevant du ministère.

Water evacuation when using rubber dam

An effective coolant is necessary for cavity preparation when using an air turbine and rubber dam. For this purpose copious amounts of water must be introduced to and removed from the operative field. An effective evacuating system to handle these quantities of water is described. The system is composed of a power aspirator and two sets of intravenous tubing. One set of tubing is hooked to a rubber dam clamp and rubber dam frame. The other ends in a trough formed by the rubber dam. Because the tubing is small, the dentist has an unobstructed view of the operative field.

Un agent de refroidissement efficace est indispensable à la préparation des cavités lorsqu'on emploie les appareils à haute révolution et la digue. Il faut arroser le champ opératoire abondamment tout en éliminant cette eau de façon efficace et rapide. L'auteur décrit un appareil qui répond à ces exigences. Deux tubes intraveineux sont raccordés à un aspirateur mécanique. Un tube est fixé au clamp de la digue de même qu'à son cadre. L'autre tube est placé dans une dépression de la digue vers laquelle l'eau s'écoulera naturellement. Les tubes étant petits, ils laissent au dentiste une vue parfaite du champ opératoire.

Many authors have stressed the importance of time and motion in operative dentistry in order to conserve effort and increase the volume of service. Emphasis is given to the positions occupied by the patient, the dentist and the dental assistant. Prepared instrument trays, oral evacuation systems, and mobile cabinets have been advocated. All of these are important but much of their value is dissipated if the dentist fails to use a rubber dam. Rubber dam is, in my opinion, the biggest time saving factor in operative dentistry and the greatest single aid to the personal comfort of the patient and the dentist.

A major problem has arisen from introduction of the air turbine. If we follow

the advice of endodontists — especially Nygaard Ostby and his associates who have made extensive microscopic studies of pulp changes resulting from high speed cutting techniques — we should use copious quantities of water in order to prevent damage to the pulp. Thus, some efficient method of water disposal must be arranged. Without a rubber dam the patient may choke, particularly if he is in a supine position. With a rubber dam patients are spared the discomfort of having a large volume of water constantly circulating through the mouth. But the dentist's view of the operating field is seriously impaired and disposal of the water becomes a major problem. An as-

sistant with a power aspirator cannot get close enough to the working area because the mirror and air turbine head are there. An assistant is not always available while the dentist is working with a rubber dam. Moreover, bulky tubing impedes vision and operating access. The following method was therefore devised to overcome these handicaps.

A sheet of rubber dam is cut 5 x 6 inches for the anterior portion of the mouth (incisors, cuspids and bicuspid) or 5 x 7 inches for the molars. The hole for the central incisor is located 2 inches from the border and the remaining holes are punched as required. Rubber dam clamps with a wing are used. Ivory 14A, 14, 00 and 0 clamps, SSW 209 clamps, and Ash 7 clamps are suitable for this purpose.

The Ostby plastic rubber dam frame holds the dam in position (Figure 1). The frame is placed outside the dam and the rubber is stretched over the protuberances. The bottom part of the rubber is folded back and up to form a trough and the corners are held with Peewee 45 electrical clips obtainable at any electrical supply counter (Figure 2). Interdental stimulators are wedged between the teeth to be operated upon. This prevents damage to the dam.

I have a Vacudent power aspirator in each of two operating rooms (Figure 3). Each aspirator is equipped with two large tubes, one of which has an adapter with two small attachments (Figure 4). The tubing from a Plexitron R41 intravenous solution administration set (Baxter Laboratories) fits accurately onto each tip of the adapter. This leaves one tube of the aspirator free while the other is con-

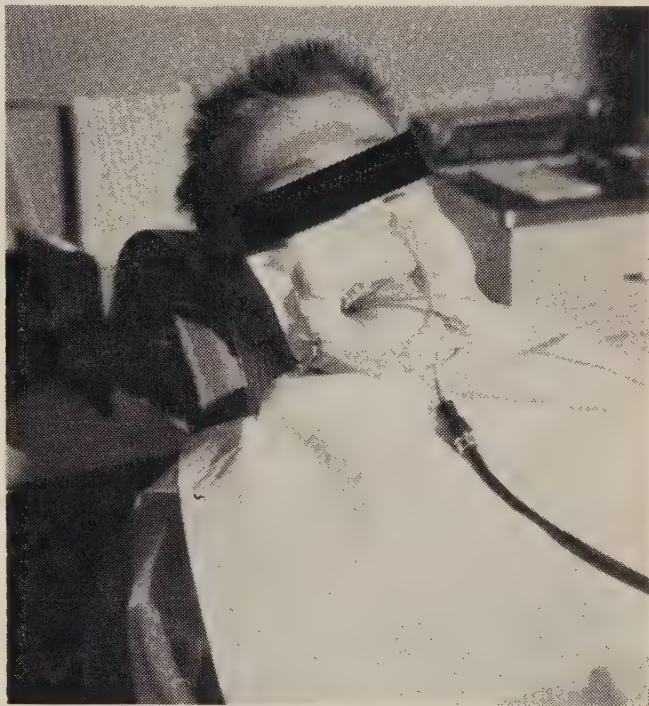


FIGURE 1



FIGURE 2

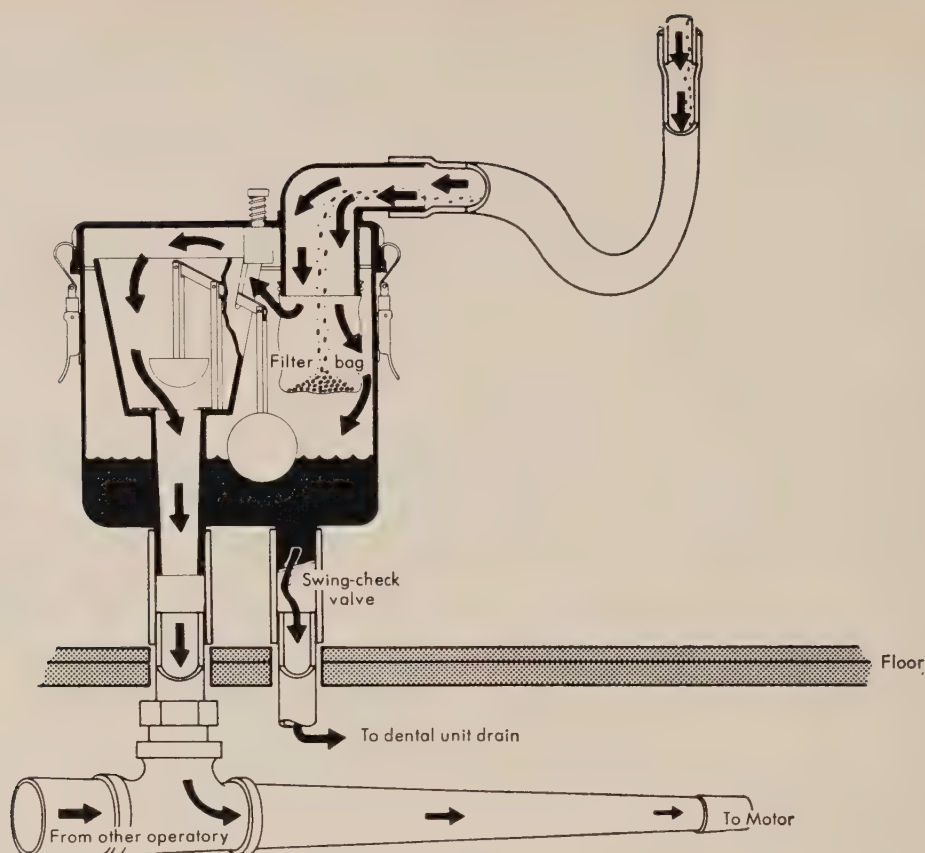


FIGURE 3 Vacudent power aspirator (Illustrations courtesy of Vacudent Industrial Centre).



FIGURE 4

nected to two lengths of R41 tubing (Figures 5, 6).

Into the open end of one piece of R41 tubing are then inserted the free ends of a doubled up 12 inch length of no. 24 gauge stainless steel wire. Tension in the free ends holds the wire firmly in place. The protruding loop of wire is bent into a J shaped hook. A similar wire is adapted to the second piece of R41 tubing, the protruding loop being shaped into a triangular hook (Figure 7).

The tubing with the J wire is hooked under the wing of the rubber dam clamp when operating on lower teeth or hooked to the loop of the clamp when operating on upper teeth. The tubing with the triangular wire is hooked underneath the pointed base of the Ostby frame. This tubing then evacuates water that escapes into the trough of the rubber dam. Used alone, this tubing is usually adequate when operating on anterior teeth.

With this arrangement water applied at full pressure can be removed as fast as it is introduced. This tubing, moreover, is small enough to remain out of the way, yet rigid enough not to collapse.

SUMMARY

The use of an effective coolant to avoid pulp damage is mandatory for cavity preparation using an air turbine and rubber dam. For this purpose copious amounts of water must be introduced to and removed from the operative field. An evacuating system that can handle large quantities of water and will not impede the dentist is described. The system comprises a power aspirator and two sets of intravenous tubing. One set of tubing is hooked to a rubber dam clamp and the rubber dam frame. The other ends in a trough formed by the rubber dam.

The advantages of this technique are:

- 1. There is practically no danger of overheating and damaging the pulp.

FIGURE 6 (below)



- 2. The dam acts as a wind and water shield for the patient.
- 3. The dentist has an unobstructed view. Should there be a carious exposure he can immediately perform pulp surgery in a non-contaminated field.
- 4. After using the air turbine, the field can be immediately dried and the preparation completed in a dry field.

39 McKenzie Street



FIGURE 5 (above)
R41 intravenous solution administration set.

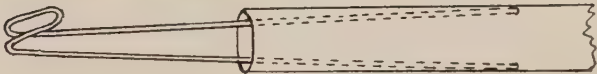
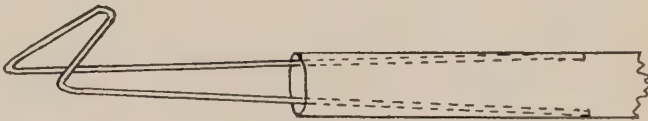


FIGURE 7



Tracings from 45 degree oblique cephalographs revealed that tooth migration following premature loss of the deciduous molars depends upon the amount of leeway space in the arch, cusp height of the first permanent molars and age when the deciduous teeth were prematurely lost. Significant space loss followed the removal of second deciduous molars at any time from prior to first permanent molar eruption up to one year before normal exfoliation. The greatest space loss occurred where second deciduous molars were lost before first permanent molars had erupted. The smallest space loss occurred when premature loss occurred less than one year before normal exfoliation. Maxillary first permanent molars drifted in crowded rather than in uncrowded arches. The rate of this migration was one-third of a millimetre for each millimetre less of leeway space. First permanent molar cusp height inhibited drifting. Migration increased by 2.4 mm. for each millimetre less of cusp height. Leeway and cusp height exerted a cumulative effect on tooth migration following premature deciduous tooth loss.

L'étude de céphalogrammes obliques à 45 degrés a établi que le déplacement des dents à la suite de la perte prématurée des molaires temporaires dépend de l'espace libre que l'on trouve sur l'arcade dentaire, de la hauteur des cuspidés des premières molaires permanentes, ainsi que de l'âge auquel a lieu la perte prématurée des dents temporaires. Ainsi, une diminution d'espace notable se produit lorsque la perte des dents temporaires a lieu avant l'apparition de la première molaire permanente, ou plus d'un an avant la date normale de la chute de la dent temporaire. Cette perte d'espace atteint son maximum lorsque les secondes molaires temporaires disparaissent avant l'apparition des premières molaires permanentes. Par contre, elle est minime lorsque cela se produit moins d'une année avant l'exfoliation naturelle. Les premières molaires permanentes supérieures se déplacent plus particulièrement sur les arcades qui présentent moins d'espace libre. La proportion de déplacement est d'un tiers de millimètre pour chaque millimètre d'espace libre manquant. Au contraire, la hauteur

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Effect of premature loss of deciduous molars on the anteroposterior position of maxillary first permanent molars and other maxillary teeth

des cuspides des premières molaires permanentes semble entraver le degré de déplacement, lequel est de 2.4 mm pour chaque millimètre de hauteur en moins. La quantité d'espace libre sur l'arcade et la hauteur des cuspides agissent de façon cumulative sur le déplacement des dents à la suite de la perte prématurée des dents temporaires.

This project was undertaken to study the effect of premature loss of second and/or first and second maxillary deciduous molars on the anteroposterior position of other teeth in the same quadrant, with particular reference to the maxillary first permanent molar. From a clinical viewpoint, such information provides guidance concerning the indications for space maintenance.

Tooth migration following premature deciduous tooth loss was observed as early as the middle of the eighteenth century by Fauchard¹ and later by Hun-

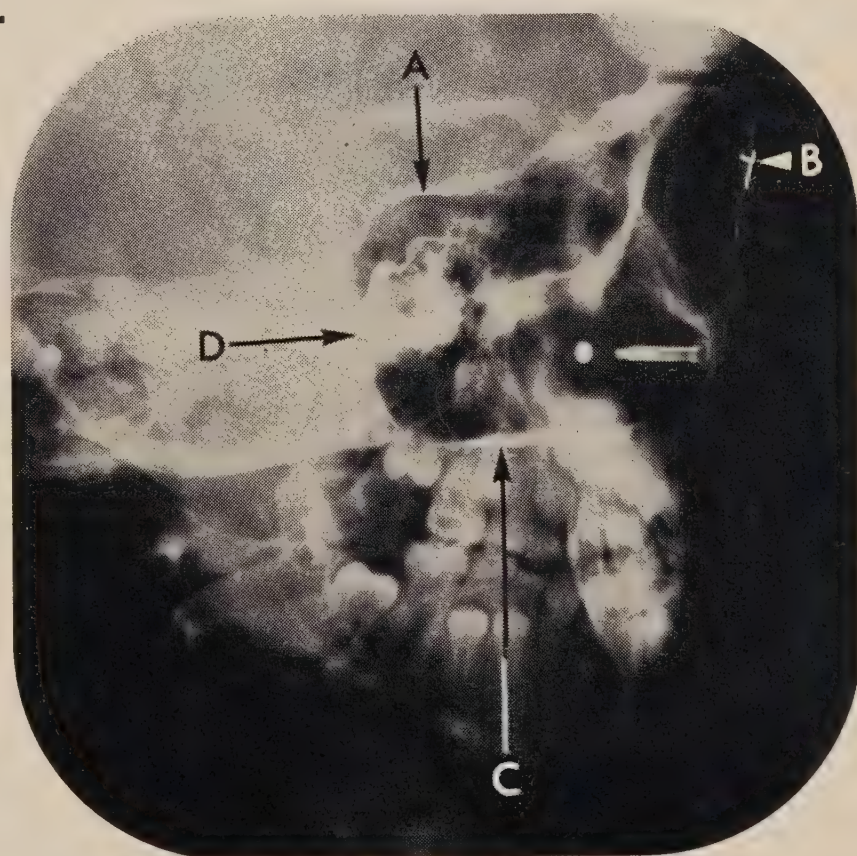
ter.² By then it was a subject of topical controversy.

Many observers since that time have emphasized the harmful effects of premature loss of deciduous teeth, but most of these early comments are very general and non-specific.

Stallard,³ for example, in 1923 described the "anterior force component concept" and stated that because of this, "molars have the greatest tendency to move forward at every opportunity afforded them." This may explain the view of Lyons,⁴ expressed a year later, that 65 per cent of cases with premature loss of deciduous teeth result in malocclusion.

Shortly afterwards, Chapman⁵ described four cases of impacted second bicuspid to illustrate the necessity of preserving spaces caused by premature loss of deciduous teeth. This view was supported by Conover⁶ in an article dealing with the mesial drift of first permanent molars as they erupt into a mouth without a full complement of deciduous teeth.

FIGURE 1 Left oblique cephalograph illustrating the four bony profiles used as registration landmarks for the superimposition of tracings. A, planum sphenoidium; B, orbital margin of zygomatic bone at zygomaticofrontal suture; C, nasal floor in the region of the posterior nasal spine; D, posterior margin of maxilla at pterygomaxillary fissure. Bone contours have been accentuated in this reproduction. The zygomaticofrontal suture, for example, is particularly difficult to reproduce on a photograph of an oblique cephalograph.



Brandhorst⁷ later claimed that 20 per cent of the cases with premature deciduous tooth loss develop malocclusion. Willett,⁸ however, claimed that the estimated percentage in these cases should be 28 per cent. Broussard⁹ recommended space maintainers to prevent "reduction in the size of the jaws" that follows premature deciduous tooth loss. His indication for space maintenance was affirmative when the radiograph showed "the successive permanent teeth deep in the jaw."

Authors gradually became more discriminating about the treatment of data. Ungar,¹⁰ for example, concluded that more drift occurred in the maxilla than in the mandible. He felt it was greatest following premature loss of the second deciduous molars. This opinion was supported by Brauer¹¹ and Cohen.¹² Ungar¹⁰ also stated that the type of occlusion played no part in determining whether permanent teeth erupt normally following premature loss of deciduous teeth.

Schachter¹³ refers to a study of 50 cases of very early loss of deciduous teeth which indicated that the time when the deciduous teeth were removed was related to space loss and malocclusion.

There are definite signs, however, that space loss is not always a consequence of premature deciduous tooth loss. Weber¹⁴ indicated in his study that 6.3

per cent of spaces reopened following premature deciduous molar extraction. Liu¹⁵ suggested that cuspal interlocking may prevent drifting if occlusion is good. Lusterman¹⁶ supported this view by suggesting that in patients with adequate bone mass, as evidenced by interdental spacing, space maintainers may not be required. Clinch¹⁷ also writes that well developed arches show little, if any, permanent space loss following later extractions.

Many others, including Angle,¹⁸ Kantorowicz,¹⁹ Lewis and Lehman,²⁰ and Sillman²¹ have discounted the value of space control. These opinions are based generally on the observation that malocclusion is not always a consequence of premature deciduous tooth loss. Seipel²² reports that a space maintainer prevents crowding in only 18 per cent of cases, has a questionable effect in 51 per cent of cases and a negative or undesirable effect in 15 per cent of cases. Breakspear's²³ results support those of Seipel,²² and Lundstrom²⁴ appeals for more investigation into this problem. These opinions suggest that factors other than premature tooth loss must be considered before a prognosis concerning space closure is made.

Recently, Linder-Aronson²⁵ made measurements on dental casts by comparing right and left sides of 41 14-15 year old

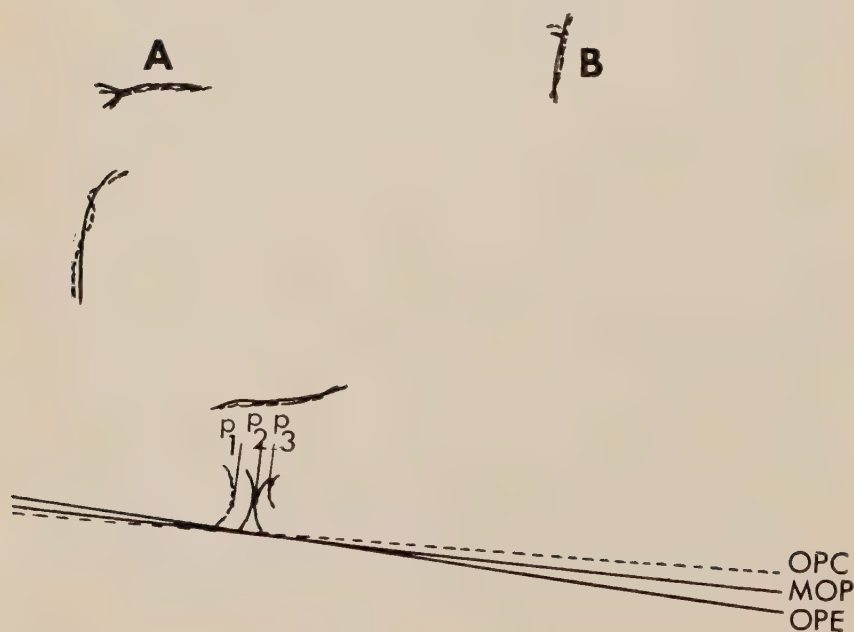


FIGURE 2 Reproduction of matched tracings of the example case in Figure 1. Solid lines represent the extraction side; broken lines the non-extraction side. Superimpositions of paired bony contours are indicated at A, B, C, and D. Lines OPC and OPE represent the functional occlusal planes for the respective sides. Line MOP is the midplane occlusal plane which serves as base line for anteroposterior measurements. Lines P₁, P₂, and P₃ are tangents to the teeth under observation and are perpendicular to line MOP.

children with a history of premature unilateral deciduous tooth loss. He states that "no definite relation could be demonstrated between premature loss of deciduous teeth and crowding in the permanent dentition at 14 and 15 years of age."

The literature is still controversial concerning this problem. This confusion arises from the fact that permanent space closure is not always a sequel to premature loss of teeth and that many interacting factors must be involved.

The present investigation is specifically concerned with the amount of tooth migration in the molar area of the maxilla and how this movement is related to such factors as time, crowding, cusp height, occlusion, sex, dental caries and side of extraction.

MATERIAL AND METHOD

Source of Data.—A random sample of 46 9-13 year old children was selected. Each child had experienced unilateral premature loss of second and/or first and second maxillary deciduous molars. Any premature tooth loss in the mandible of these subjects was restricted to the deciduous molars of the opposite side.

Recordings.—The following information was recorded: sex, age at last birthday, age at time of deciduous tooth loss, cusp height, leeway, location and identification of tooth or teeth extracted, occlusion (Angle's molar classification), plaster casts made from Geltrate alginate impressions, and right and left 45 degree oblique cephalographs. The cephalometric technique, modified after Broadbent,²⁶ was introduced by Cartwright and Harvold²⁷ in 1954.

Measurement of Tooth Drift.—Anteroposterior tooth drift was measured by the superimposition of tracings made from right and left 45 degree oblique cephalographs. Four bony profiles were used as radiographic landmarks: A, planum sphenoidium; B, orbital margin of the zygomatic bone at the zygomaticofrontal suture; C, nasal floor in the region of the

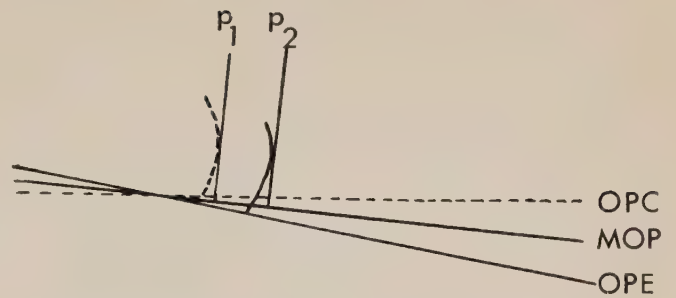


FIGURE 3 Enlarged sketch of the measurement area in Figure 2.

posterior nasal spine; and D, posterior margin of the maxilla at the pterygo-maxillary fissure. These contours are anatomically intimately related to the maxilla and are arrayed in four planes of space about the measurement area. Figure 1 delineates the four bony profiles as they appear radiographically.

The following features were drawn for both sides in each case: the four bony profiles previously described, the mesial surface of the maxillary first permanent molar, the distal surface of the first deciduous molar (or the first bicuspid if in occlusion) and the functional occlusal plane.

The functional occlusal plane was established by recording the cuspal point contacts between the maxillary and the mandibular teeth in the bicuspid and molar regions. In some cases, these points were altered following visual examination of articulated plaster casts. The occlusal plane — a straight line — was then arbitrarily fitted to these points. In theory, this plane represents the mean value of a scatter of markings.

The tracing of the extraction (experimental) side was inverted over the control side. After maximum superimposition of the four pairs of contours was achieved, the tracings were affixed to each other.

Figure 2 illustrates matched tracings for the sample case illustrated in Figure 1. The respective functional occlusal planes rarely coincided on superimposition. This was standardized by bisecting the angle formed by the two occlusal planes. The resulting midplane occlusal plane (MOP) then served as a base line along which anteroposterior measurements were made.

Perpendicular lines were drawn from the midplane occlusal plane and tangen-

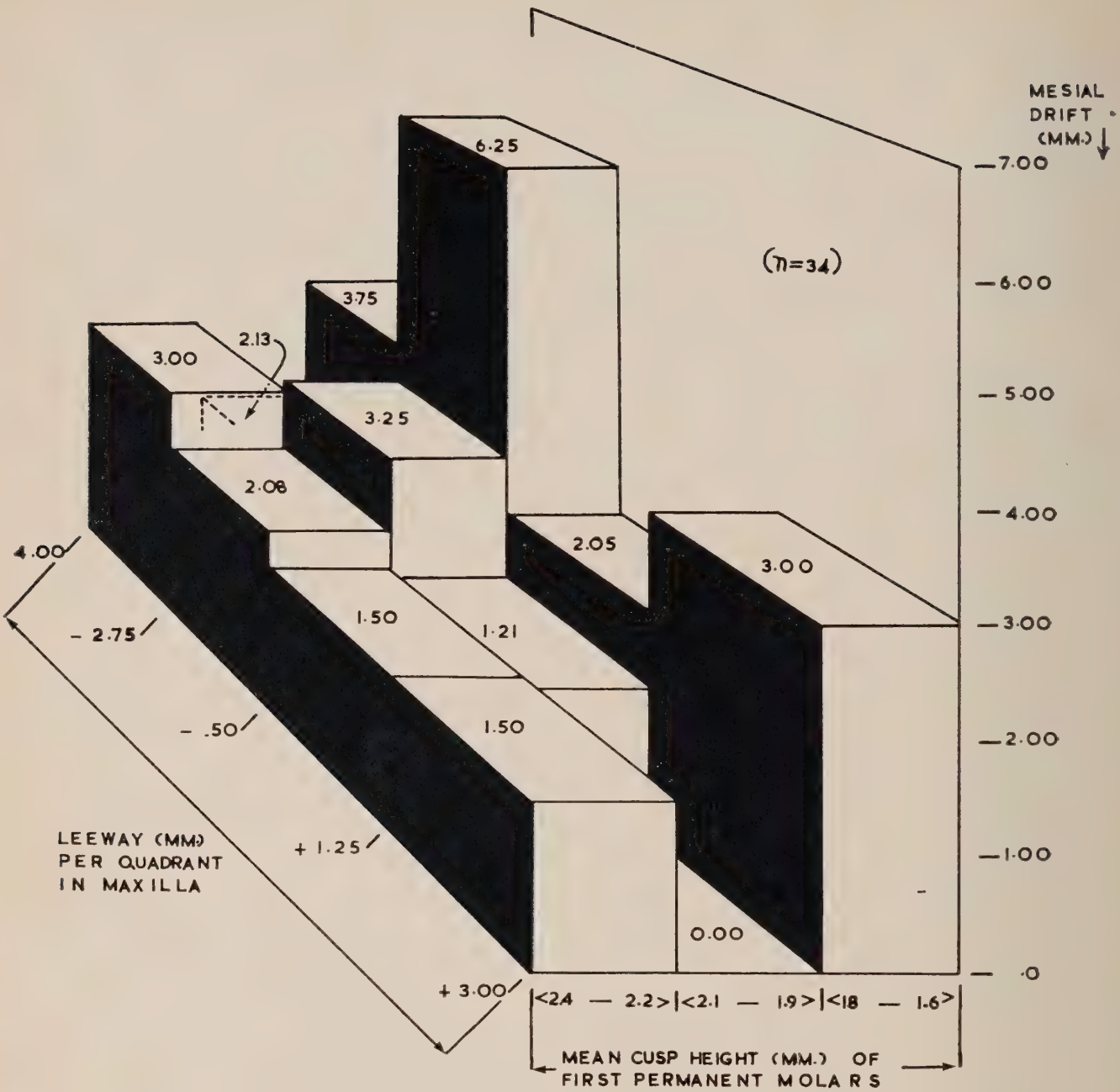


FIGURE 4 Three dimensional histogram illustrates the combined effect of leeway and cusp height on mesial migration of the maxillary first permanent molar following premature loss of the maxillary second deciduous molar at any time up to one year prior to examination, for 34 9 - 13 year old children. Numbers in boxes represent mean drift values for each block of the histogram.

tial to the contours representing the surfaces of the teeth to be studied.

Figure 3 is an enlarged sketch of the measurement area of Figure 2 for the first permanent molars.

Measurement of Leeway and Cusp Height. — Leeway as interpreted by Nance²⁸ was measured using the method modified after Ballard and Wylie.²⁹ The predicted width of the maxillary cuspid and first and second bicuspid teeth is, therefore,

$$11 \times \frac{x}{2} \text{ mm.}$$
 where x is the sum of the widths of the four mandibular incisors.

The average cusp height between the maxilla and the mandibular permanent molars of the extraction side were recorded for 34 pairs of models. Teeth with dental restorations were rejected. Softened compound was moulded over the occlusal surface of the teeth involved which were previously painted with separating film. The compound was then pressed

into the fissures with a cold glass slab until the tops of the four cusps were visible through the glass. When hard, the compound represented an impression of the occlusal surface of the tooth which, when measured with a Boley gauge, indicated the cusp height.

FINDINGS

The mean values for tooth drift were analysed according to the several attributes as follows:

Drift According to Time of Deciduous Tooth Loss.—Table 1 shows that the drift means (the mean differences between the control and the extraction sides) were all significantly greater than zero ($P < .01$). The largest value was $6.12 \pm .503$ mm. for the total amount of space loss in those cases where deciduous tooth loss occurred before the eruption of the first permanent molar. The smallest value was $.79 \pm .363$ mm. for mesial drifting of first permanent molars in cases where tooth loss occurred less than one year before bicuspid eruptions.

Drift According to Leeway.—It is notable that there was no significant difference in the average leeway according to the time of premature deciduous tooth loss. But the difference between drift means, arrayed according to positive or negative leeway in Table 2, although not clearly significant, showed a strong trend for more mesial drift in crowded than in uncrowded arches.

This suggested that, where there was a lack of leeway, drift tended to be more pronounced. To confirm this trend, analysis of covariance, assuming a linear regression of drift (Y) on leeway (X), was used to compute the coefficient of the common regression (b) of drift on leeway (Table 3) and to test leeway adjusted means (Table 4). The average mesial drift of the maxillary first permanent molar was estimated to be $-.3051 \pm .145$ per millimetre of leeway. Stated another way, for each millimetre less of leeway in the maxilla, there was .3051 mm. more of drift of the first permanent

molar on the extraction side. The regression of drift on leeway was only clearly manifested by the mesial drift of the maxillary first permanent molars.

Drift According to Cusp Height.—The linear product moment correlation between mesial drift and cusp height of maxillary first permanent molars for the entire sample was computed to be negative and low but significant ($-.279$). This suggested that drift diminished as cusp height increased. To confirm this suggestion, analysis of covariance, assuming a linear regression of drift (Y) on cusp height (X), was used to compute the coefficient of the common regression (b) of drift on cusp height. The average mesial drift of the maxillary first permanent molar was estimated to be -2.3672 ± 1.09 per millimetre of cusp height. Stated another way, for each millimetre less of cusp height, there were 2.3672 mm. of drift of the first permanent molar on the extraction side.

Figure 4 illustrates the combined effect of leeway and cusp height on mesial drift of the maxillary first permanent molars in all cases where the two attributes apply, and regardless of when the teeth were lost.

Drift According to Occlusion, Caries, Sex and Side of Tooth Loss.—In an attempt to investigate the effect of these attributes on drifting teeth, the entire sample was treated separately for each attribute irrespective of the time of deciduous tooth loss.

No significant differences in the amount of drift between the control and experimental groups could be associated with occlusion, dental caries, sex or side of mouth where extractions were performed.

DISCUSSION

Bony Profiles Used as 'Stable' Points of Reference.—To compare right and left sides of the same individual by means of 45 degree oblique cephalographs, it was necessary to have stable points of reference from which to make measurements.

TABLE 1 Mean drift* in maxilla of first permanent molar and first deciduous molar (or first bicuspid), arrayed according to time of premature loss of second deciduous molar for 38 (46†) children, 9-13 years of age.

Drift	Time of premature deciduous tooth loss					
	[1]	[2]	[3]	Significance of difference in means according to time of deciduous tooth loss		
	Before eruption of maxillary first permanent molar	After eruption of maxillary first permanent molar, but at least 1 year before bicuspid eruption	Less than 1 year before bicuspid eruption			
	Mean $\pm$ S.E.	Mean $\pm$ S.E.	Mean $\pm$ S.E.	[1 : 2]	[1 : 3]	[2 : 3]
Mesial drift of maxillary first permanent molar	$\pm 3.81 \pm .616$ (n = 9)	$\pm 2.27 \pm .362$ (n = 23)	$\pm .79 \pm .363$ (n = 14)	P<.05	P<.01	P<.01
Distal drift of maxillary first deciduous molar or first bicuspid	$\pm 2.50 \pm .533$ (n = 8)	$\pm 1.50 \pm .558$ (n = 19)	$\pm 1.45 \pm .351$ (n = 11)	Not sig.	Not sig.	Not sig.
Total space loss from mesial and distal drifting	$\pm 6.12 \pm .503$ (n = 8)	$\pm 3.73 \pm .630$ (n = 19)	$\pm 2.30 \pm .657$ (n = 11)	P<.05	P<.01	Not sig.

*Drift (mm.) is taken to be the difference between right and left sides. (Sample consisted of cases with unilateral deciduous tooth loss in the maxilla, non-extraction side was control.)

†Sample size was 46 children, but in eight instances where maxillary first deciduous molars were missing or first bicuspid were not in occlusion, their distal drift was not recorded.

‡Mean drift is significantly greater than zero (P<.01).

TABLE 2 Mean drift in maxilla of first permanent molar and first deciduous molar (or first bicuspid), arrayed according to presence of (positive) or absence of (negative) leeway space for 46 children, 9-13 years of age.

Drift (mm.)	Positive leeway	Negative leeway	Significance of difference between means
	(n = 25) Mean $\pm$ S.E.	(n = 21) Mean $\pm$ S.E.	
Mesial drift of maxillary first permanent molar	$1.70 \pm .390$	$2.62 \pm .315$	Not sig. (P<.10>.05)
Distal drift of maxillary first deciduous molar or first bicuspid	$1.58 \pm .446$	$1.58 \pm .482$	Not sig.
Total space loss from mesial and distal drifting	$3.43 \pm .589$	$4.20 \pm .650$	Not sig.

The previously cited four bony profiles were adopted because:

(a) No solitary bony point on, or closely related to, the maxilla can be constantly defined in 45 degree oblique cephalographs.

(b) A single bony contour, not being a

point, cannot be satisfactorily used as a registration mark from which to construct the reference line. Superimposition of a single bone profile without a registration point would, moreover, be accurate only in the plane of space represented by the contour but would be

TABLE 3 Regression coefficients for the common regression of drift on leeway.

Mesial drift of maxillary first permanent molar	Distal drift of maxillary first deciduous molar or first bicuspid
Mean ± S.E.	Mean ± S.E.
— .3051 ± .145 (n = 46) P < .05*	— .0970 ± .210 (n = 38) Not significant

*Common regression coefficient is significantly greater than zero at the 5 per cent level of confidence.

inaccurate in the other directions. Therefore, at least two pairs of flat contours, in as divergent planes of space as possible, must be chosen.

Four pairs of contours were therefore used instead of a minimum of two. This reduces the possible error of asymmetry, indicated when a bony contour is obviously abnormally placed. It also allows for proper superimposition in instances when one bone profile may be radiographically undistinguishable.

Krogman and Sassouni,³⁰ when discussing planes of orientation in cephalometrics, suggested the use of three or four planes for superimposition. Kraus et al³¹ delineated the craniofacial complex into small units of bone segments that fit bi-

ological demands. It is of interest that three of the four landmarks used in this study correspond anatomically to bone profiles described by Kraus.³¹ The Kraus study superimposed many bone profiles between twins whereas the present investigation is concerned with the superimposition of four individual morphological configurations between the two sides of the same individual.

The planum sphenoidium was chosen as a bone profile because in the oblique radiograph it still represents a plane (Figure 1). Moreover, as a cranial base structure, its midline position is common to both right and left views and is not much influenced by unilateral growth discrepancies of either side. The sphenoid bone is frequently referred to in cephalometric studies by Moss,³² Moore,³³ Kraus³¹ and Ross.³⁴

The orbital margin of the zygomatic bone in the region of the zygomaticofrontal suture has been investigated for bilateral symmetry by Woo³⁵ and Harvold.³⁶ Woo³⁵ noted that, on bilateral comparison, there are few markedly significant differences found in any character of the zygomatic bone. Harvold,³⁶ who conducted a study of the asymmetries of the upper facial skeleton, satisfied himself that the zygomaticofrontal suture had a high degree of symmetry.

The nasal floor, represented by a line drawn from the anterior to the posterior

TABLE 4 Leeway adjusted drift means for maxillary first permanent molar arrayed according to time of loss of second deciduous molar for 46 children, 9-13 years of age.

Drift	Time of premature deciduous tooth loss			Significance of difference in means according to time of deciduous tooth loss		
	[1] Before eruption of maxillary first permanent molar	[2] After eruption of maxillary first permanent molar but at least 1 year before bicuspid eruption	[3] Less than one year before bicuspid eruption			
	Mean	Mean	Mean	[1 : 2]	[1 : 3]	[2 : 3]
Mesial drift of maxillary first permanent molar	3.53 (n = 9)	2.42 (n = 23)	.73 (n = 14)	Not sig.	P < .01	P < .01

nasal spine, is, according to Brodie,³⁷ fairly stable in the horizontal position. In the 45 degree oblique cephalograph, the palatal plane includes the posterior nasal spine.

The point at the base of the pterygo-maxillary fissure has been used successfully as a landmark for superimposition studies with lateral cephalographs by Moore,³³ Brodie³⁷ and Wylie.³⁸ In the 45 degree oblique cephalograph, the posterior border of the maxilla is usually discernible in the region that forms the anterior boundary of the pterygomaxillary fissure. The bone contour of the maxilla in this region, as considered in this study, lies above the area of the tuberosity that, according to Scott,³⁹ may be influenced by developing maxillary teeth.

The validity of the radiographic method of measurement here described was tested by comparing the results with those obtained with a symmetroscope and dental plaster casts. The mean difference between these two techniques was $.05 \pm .159$ mm. which was not significant.

Drift According to Time of Deciduous Tooth Loss.—It seems evident that the earlier the deciduous teeth are lost the more drifting occurs. The significance of the differences in means according to the time of deciduous tooth loss (Table 2) reveals that the time of this loss does significantly affect mesial drifting of the maxillary first permanent molars, but does not affect distal drifting of first deciduous molars or first bicuspid. The drift that follows deciduous tooth loss occurring before first permanent molar eruption differs significantly from the drift that follows tooth loss occurring after first permanent molar eruption. In view of this phenomenon, it is interesting to speculate whether mesial movement of the unerupted permanent molars does take place. Additional information to support this supposition is necessary.

Drift According to Leeway and Cusp Height.—The entire sample was divided on the basis of positive or negative leeway. The common regression of drift on leeway was found to be $-.3051$ mm. for

mesial drift of the maxillary first permanent molars. The practical application of this leeway finding is that a near ratio of 1:3 exists between drift and leeway. For example, if a second deciduous molar is lost prematurely from a dental arch exhibiting a mixed dentition analysis leeway value of -3 mm. in each quadrant, the first permanent molar would be expected to drift 1 mm. more than in a patient with zero leeway. The general average leeway in this sample, however, was not zero but $-.202$ mm. which would slightly reduce the 1:3 ratio.

To test the effect of cuspal interlock on space loss, the regression coefficient for the common regression of mesial drift on cusp height of the maxillary first permanent molar was calculated and found to be -2.3672 . This means that for each millimetre less of cusp height there is 2.37 mm. more mesial drift of the first permanent molars. Cusp height, therefore, seems to have a strong influence on drift.

If the effects of leeway and cusp height are combined for practical purposes, the total effect is more dramatic than when each attribute is considered separately (Figure 4).

Drift According to Occlusion, Caries, Sex and Side of Tooth Loss.—These attributes did not exhibit any significant effect on the drifting of teeth. The caries classification was included for its effect on the control rather than on the extraction side. The presence of interproximal caries did not significantly influence the control quadrant.

SUMMARY AND CONCLUSIONS

The object of this investigation was to study the effect of premature loss of the second, or first and second, maxillary deciduous molars on the anteroposterior position of other teeth in the same quadrant. This was accomplished by means of tracings recorded from 45 degree oblique cephalographs. Tooth migration was related to such factors as age of tooth loss, amount of potential dental crowding in the arch, cusp height of the first permanent molars, occlusion, sex, interproxi-

mal caries, and the side on which surgery was performed.

The only factors significantly related to tooth migration were leeway, cusp height, and age when the deciduous teeth were prematurely lost.

Space loss within the maxillary arch as a sequel to premature loss of deciduous teeth was greater than zero ($P < .01$).

Total space loss in a quadrant resulted from the mesial migration of the first permanent molar ($P < .01$) and the distal movement of teeth anterior to the extraction space ($P < .01$).

Significant ($P < .01$) tooth drift and arch space loss followed the removal of second deciduous molars at any time from prior to first permanent molar eruption up to one year before normal exfoliation. The greatest average space loss was $6.12 \pm .503$ mm. for the total amount of mesial and distal drifting that occurred in cases where deciduous second molars were lost before first permanent molars had erupted. In these instances the mesial drifting of first permanent molars accounted for $3.81 \pm .616$ mm. of the total space lost. The smallest average space lost due to total mesial and distal drifting of teeth was $2.30 \pm .657$ mm. for those cases where premature loss occurred less than one year prior to normal exfoliation.

More drifting of maxillary first permanent molars occurred in potentially crowded than potentially uncrowded arches. For each millimetre less of leeway, there was .305 mm. more mesial drift.

The cusp height of the first permanent molars was related to the drift of those teeth. This suggests that high cusps inhibited drifting. For each millimetre less of cusp height, there was 2.367 mm. more mesial drift.

Leeway and cusp height values may exert a cumulative effect on the drifting that may occur after premature deciduous tooth loss.

Occlusion, caries, sex and the side on which extractions were performed did not contribute to the tooth migration that followed premature removal of deciduous teeth.

tise on the teeth. Translated from the French. Ed. 2 by Lilian Lindsay. London, Butterworth, 1946.

2. Hunter, John. Treatise on the natural history and diseases of the human teeth. Part II. Philadelphia, Haswell, Barrington and Haswell, 1839.
3. Stallard, Harvey. The anterior component of the force of mastication and its significance to the dental apparatus. *Den. Cosmos* 65:457, 1923.
4. Lyons, D. C. The importance of early recognition of dental disorders in children. *Den. Cosmos* 66:535, 1924.
5. Chapman, Harold. Orthodontics: the necessity of histories to establish etiology; the necessity of extra function in retention; the necessity of preserving spaces caused by premature loss of deciduous teeth. *Ortho. & Oral Surgery, Int. Jnl.* 13:768, 1927.
6. Conover, C. S. Deciduous teeth—effect of too early loss and too long retention. *Ortho. & Oral Surgery, Int. Jnl.* 14:576, 1928.
7. Brandhorst, O. W. Promoting normal development by maintaining the function of the deciduous teeth. (Habits. Premature loss.) *J.A.D.A.* 19:1196, 1932.
8. Willett, R. C. Premature loss of deciduous teeth. *Angle Orthodont.* 3:106, 1933.
9. Broussard, A. C. Early extraction of deciduous and permanent teeth necessitating space retainers and restorations. *Orthodia. & Dent. for Children, Int. Jnl.* 19:968, 1933.
10. Ungar, A. L. Incidence and effect of premature loss of deciduous teeth. *Am. J. Orthodont. & Oral Surg.* 24:613, 1933.
11. Brauer, J. C. A report of 113 early or premature extractions of primary molars and the incidence of closure of space. *J. Den. Children* 8: 222, 4th Quart, 1941.
12. Cohen, J. T. The selection of cases for space maintainers. *North-West Den.* 20:75, 1941.
13. Schachter, H. Incidence and effect of premature extraction of deciduous teeth. *Brit. D. J.* 75:57, 1943.
14. Weber, F. N. Prophylactic orthodontics. *Am. J. Orthodont.* 35:611, 1949.
15. Liu, Wen Lan. A study of the closure of space following premature loss of deciduous teeth. Thesis, Faculty of Dentistry, University of Toronto, 1949.
16. Lusterman, E. A. Dynamics of dentofacial growth and development relative to space maintenance. *J.A.D.A.* 57:676, 1958.
17. Clinch, Lilah H. A longitudinal study of the results of premature extraction of deciduous teeth between 3-4 and 13-14 years of age. Statistical appendix by M. J. R. Healy. *D. Practitioner* 9:109, 1959.
18. Angle, E. H. The upper first molar as a basis of diagnosis in orthodontia. *Den. Items of Interest* 23:421, 1906.
19. Kantorowicz, Prof. Dr. The self correction of orthodontic anomalies. *Ortho. & Oral Surgery, Int. Jnl.* 13:128, 1927.
20. Lewis, S. J. and Lehman, I. A. Observations on growth changes of the teeth and dental arches. *Den. Cosmos* 71:480, 1929.
21. Sillman, J. H. Serial study of occlusion (birth to ten years of age). *Am. J. Orthodont.* 34:969, 1948.
22. Seipel, C. M. Prevention of malocclusion. *D. Record* 64:224, 1949.
23. Breakspear, E. K. Sequelae of early loss of deciduous molars. *D. Record* 71:127, 1951.
24. Lundstrom, A. How much can we hope to reduce the incidence of malocclusion through prophylactic measures? *D. Practitioner & D. Record* 9:129, 1959.
25. Linder-Aronson, Sten. Effect of premature loss of deciduous teeth. A biometric study in 14- and 15- year olds. *Acta Odont. Scandinavica* 18: 101, 1960.
26. Broadbent, B. H. A new x-ray technique and its application to orthodontia. *Angle Orthodont.* 1:45, 1931.
27. Cartwright, L. J. and Harvold, Egil. Improved radiographic results in cephalometry through the use of high kilovoltage. *J. Canad. D. A.* 20:261, 1954.
28. Nance, H. N. Limitations of orthodontic treatment—II. *Am. J. Orthodont. & Oral Surg.* 35: 177, 1947.
29. Ballard, M. L. and Wylie, W. L. Mixed dentition

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1. Fauchard, Pierre, The surgeon dentist or Treas-

- case analysis—estimating size of unerupted permanent teeth. *Am. J. Orthodont. & Oral Surg.* 33:754, 1947.
30. Krogman, M. W. and Sassouni, Viken. A syllabus in roentgenographic cephalometry. Philadelphia, Philadelphia Center for Research in Child Growth, 1957.
 31. Kraus, B. S., Wise, W. J. and Frei, R. H. Heredity and the craniofacial complex. *Am. J. Orthodont.* 45:172, 1959.
 32. Moss, M. L. Correlation of cranial base angulation with cephalic malformations and growth disharmonies of dental interest. *New York D. J.* 21:452, 1955.
 33. Moore, A. W. Observations on facial growth and its clinical significance. *Am. J. Orthodont.* 45:399, 1959.
 34. Ross, B. An appraisal of cephalometric roent-
 - genographic analysis as an aid in orthodontic diagnosis. M.Sc. Thesis, Faculty of Dentistry, University of Toronto.
 35. Woo, T. L. A biometric study of the human malar bone. *Biometrika* 29:113, 1937.
 36. Harvold, Egil. The asymmetries of the upper facial skeleton and their morphological significance. *European Orthodont. Soc. Tr.* 63:99, 1951.
 37. Brodie, A. G. Late growth changes in the human face. *Angle Orthodont.* 23:146, 1953.
 38. Wylie, W. L. Assessment of anteroposterior dysplasia. *Angle Orthodont.* 17:97, 1947.
 39. Scott, J. H. Further studies on the growth of the human face. *Proc. Roy. Soc. Med., Sec. Odont.* 52:263, 1959.

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September Deadline for POW Dental Accounts. — Former prisoners of war suffering from dental disease attributable to avitaminosis or other associated nutritional diseases have until September 12, 1966 to submit claims for the reimbursement of dental treatment costs incurred back to May 1962, the Honourable Roger Teillet, Minister of Veterans Affairs announced on July 4. They and other veterans pensioned for, or holding rights for disabilities service-incurred as a result of nutritional deficiencies will henceforth be provided dental treatment by the Department, the Minister said. The decision to extend treatment rights for dental disease, and to reimburse costs from May 1962, was made following a study of the Canadian Pension Commission's report concerning the disabilities and problems of Hong Kong veterans. All future dental treatment must first be authorized by either the district Senior Treatment Medical Officer, or the Chief of Service — Dentistry in the DVA district concerned.

Survey of community knowledge, attitudes and habits in regard to four dental health practices as they apply to children

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Prior to initiating a program of dental health education, a personal interview survey was conducted among 361 residents of the Trail area of British Columbia to determine their knowledge, attitudes and practices concerning oral hygiene, dietary practices, professional dental care and use of fluorides. The results revealed that respondents' awareness of the value of these dental health measures was not translated into routine practice. They also disclosed the areas of dental health practice that merit educational emphasis. Water fluoridation, the use of fluoride supplements and topical fluoride applications appeared to require particular stress. An educational program derived from a survey of this nature can be evaluated by a similar survey at a later date.

Avant d'instaurer un programme d'éducation en hygiène dentaire, on a mené une enquête dans le but de déterminer dans quelle mesure la collectivité connaît les principes d'hygiène buccale et de diététique, et de voir si elle se rend compte de l'importance des soins dentaires professionnels et de l'usage des fluorures. Enfin, on a voulu savoir quelles étaient ses habitudes et ses attitudes relativement à tout cela. Après avoir interrogé 361 habitants de la région de Trail en Colombie britannique, on s'est rendu compte que, bien qu'ils reconnaissent généralement la valeur et l'importance de ces divers principes, ils sont loin de les mettre en pratique dans la vie courante. On a pu ainsi voir sur quels points le programme d'éducation en hygiène dentaire à venir doit mettre l'accent. Il s'agit surtout de la fluoration de l'eau et de l'emploi de fluorures.

People may possess quite accurate knowledge about a specific health practice, the adoption of which should, in the view of the health professions, result in optimum health. But people who know what is recommended may or may not be sufficiently convinced of the desirability of the procedure for that knowledge to be translated into actual practice. Therefore, before a local health department can plan an effective health education program, it must first have a clear understanding of present attitudes and practices as well as the level of knowledge existing in the community.

A survey to provide this information must meet three major requirements. First, persons questioned must constitute a true random sample of the community. Home interviews are essential since mailed questionnaires would undoubtedly be completed and returned by only those families interested in health. Secondly, interviewing techniques must be sufficiently simple so that they can be used by health unit staff who may have had only a minimum of interviewing experience. Thirdly, the survey must cause the least possible disruption of regular health unit services and yet provide valid and reliable results. A review of the literature failed to reveal a previous study which met these requirements.

STUDY DESIGN

A survey was planned to be carried out by the staff of the West Kootenay Health Unit during the first three months of 1964. The health practices to be evaluated were four selected as being necessary for the optimum dental health of children:

1. Oral hygiene practices: (a) tooth-brushing; (b) completion of the meal with a detergent food when a toothbrush is not available.
2. Dietary practices: (a) nature of between-meal snacks; (b) selection of 'tooth-building' foods.
3. Visits to the dentist: (a) frequency; (b) age at first visit.
4. Use of fluorides: (a) water fluoridation; (b) fluoride supplements; (c) topical fluoride applications.

The sample of the adult population residing in the Trail area was prepared from the city directory published in December of each year. As the sample was selected early in January of 1964, it was felt that there was no more comprehensive or up to date listing available.

From the directory a simple random sample of 423 names was selected for an area including Trail, Rossland and Montrose. From this, 62 were discarded, as a number of persons had left the district or could not be contacted after repeated attempts. Only 15 refused to be interviewed.

It had been originally planned that interviews would be conducted by the public health nurses of the health unit during the course of several months. Subsequent staff changes, however, necessitated other arrangements and we decided instead to utilize a single interviewer, thus relieving the health unit of any additional workload. A former V.O.N. nurse living in the community was employed for the period of the study which was three months. Considerable clerical and organizational assistance was provided by the staff of the West Kootenay Health Unit, particularly by the dental assistant who handled office administrative procedures and telephoned for appointments with respondents. Five full-time public health nurses and a supervising nurse are employed in the Trail office of the West Kootenay Health Unit. They could have completed this project in the same period of time if each nurse had contributed one day each week to the survey.

The interview schedule consisted of two parts. The first served to record personal data on each respondent. The second part of the schedule consisted of four sections, each being a series of questions pertaining to one of the four dental practices under review, together with sets of multiple choice answers. The total number of questions asked in this part was 28. To obtain responses to these questions the interviewer displayed a set of 3 x 5 inch cards, each of which contained a possible answer. These cards were freshly shuffled for each question, dealt out in random sequence and placed in

TABLE 1 Responses by respondents with one or more children between the ages of 3 and 10 years to query regarding frequency of toothbrushing.

Frequency of toothbrushing	Knowledge		Attitudes		Practices	
	No.	%	No.	%	No.	%
More than 3 times per day	38	36.2	23	21.9	4	3.8
Three times per day	54	51.4	48	45.7	14	13.3
Twice per day	1	1.0	26	24.8	50	47.6
Once per day	1	1.0	8	7.6	29	27.6
One some days					7	6.7
Don't know how often	11	10.5			1	1.0
Total	105	100*	105	100	105	100

*Does not agree because of rounding.

front of the respondent who then selected that card which best described his particular answer to the question. In the case of the question designed to reveal the respondent's attitude towards fluoridation of water supplies, an 11 point scale was used. This ranged from 2 (strongly disapprove) to 10 (strongly approve), with provision for checking 1 or 11 to enable those with exceptionally strong views to record their response. The total interview for each respondent required an average of 25 minutes.

RESULTS

Tabulations regarding the level of knowledge and attitudes for each dental health practice were produced for three classifications of respondent:

1. All respondents ($n = 361$).
2. Respondents for whom a family folder existed in the health unit office, indicating that one or more members of the family had received some type of public health service ($n = 226$).
3. Respondents who had children between the ages of three and 10 years living at the same address ($n = 105$). The lower limit of three was selected as the age when a child should commence receiving dental care; the upper limit of 10 was established arbitrarily as an age by which parental influence over dental health practices of children has probably declined substantially.

Similar tabulations were prepared in respect to knowledge and attitudes regarding water fluoridation. An additional tabulation was also made under this criterion for a fourth category of respondent: those who were eligible to vote in a municipal election, as indicated by their inclusion on the voters' list for the December 1963 Trail municipal elections ($n = 173$).

Tabulations regarding actual habits or practices were prepared for each dental health practice for respondents with children.

The results indicate that a similar relationship generally exists between knowledge, attitudes and practices for (a) respondents with children, (b) respondents listed in the family folder, and (c) all respondents; although, as one might expect, there is a decline in the percentage of 'correct' responses (a) to (b) to (c). As not all families on whom a family folder exists have children between the ages of three and 10, it is not surprising that as a group they may be less aware of desirable dental health practices than the group with children between three and 10 years. To avoid redundancy, most of the tables presented in this report are limited to those yielding data from 'respondents with children.'

From Tables 1 and 2 it is apparent that while respondents appear to know the recommended frequency and times of the day for cleaning teeth, they are not so readily convinced of the necessity for

TABLE 2 Responses by respondents with one or more children between the ages of 3 and 10 years to query regarding times of day for toothbrushing.

Time of day	Knowledge		Attitudes		Practices	
	No.	%	No.	%	No.	%
After meals and snacks	45	42.8	27	25.7	4	3.8
After meals	43	40.9	36	34.3	7	6.6
After breakfast and on going to bed	1	1.0	16	15.2	31	29.5
On rising and on going to bed	3	2.9	11	10.5	15	14.3
On rising			1	1.0	9	8.6
On going to bed			4	3.8	11	10.5
Some other time	5	4.8	10	9.5	27	25.7
Don't know when	8	7.6			1	1.0
Total	105	100	105	100	105	100

supervising the recommended regime. The majority of responses indicates that their children clean their teeth only once or twice per day — at bedtime and either after arising in the morning or after breakfast.

In Table 2 there was no observable pattern of response under the category 'Some other time,' although the time of day was related to cleaning after two or the three main meals of the day, and, in addition, in some cases, before going to bed.

An analysis of responses recorded under the 'other' category for 'Practices' in Table 3 was encouraging, in view of

the low percentage (37.1) of respondents whose children were reported to finish their meal with the 'correct' agent. The largest single reply (about 33 per cent of the total) was 'rinse with water.' Although this particular reply was not being sought and its introduction clouds the tabulated results for this question, from a practical standpoint figures for the practice of rinsing coupled with those for 'Apple or carrot' total approximately 60 per cent.

Apparently, the impression recorded for 13.3 per cent of the respondents that 'gum' was recommended for cleaning teeth was not translated into practice.

TABLE 3 Responses by respondents with one or more children between the ages of 3 and 10 years to query regarding completion of a meal with a cleansing food when a toothbrush is not available.

Cleansing agent	Knowledge		Attitudes		Practices	
	No.	%	No.	%	No.	%
Apple or carrot	39	37.1	49	46.6	39	37.1
Glass of milk			16	15.2	15	14.3
Soft drink					1	1.0
Brush whenever they have a chance	3	2.9	11	10.5		
Gum	14	13.3	11	10.5	1	1.0
Other	3	2.9	17	16.2	45	42.8
Don't know	46	43.8			2	1.9
Not answered			1	1.0	2	1.9
Total	105	100	105	100	105	100

TABLE 4 Extent of correct selection of protective foods, for three categories of respondent.

Category of respondent	Total number of respondents	Knowledge of all seven selected foods	
		No.	Per cent
All respondents	361	28	7.8
Respondents on whom a family folder exists	225	21	9.3
Respondents with one or more children between the ages of 3 and 10 years	105	11	10.5

Table 4 provides results for the question, "When preparing meals, many people select foods for their particular qualities. Twelve foods are listed on these cards. Would you pick the seven which as far as you can remember are the best for building healthy teeth and bones?" The foods listed were, commencing with the seven recommended: cabbage, carrots, cheddar cheese, liver, eggs, margarine and oatmeal, followed by soda crackers, corn flakes, honey, plum jam and pineapple juice.

Results for each of the three classifications of respondent are in the expected sequence, although they clearly do not support any claim that food selection is made in the light of its effect on dental health.

In Table 5 are the results for the question pertaining to the nature of between

meal snacks. As with Table 3 there is a higher percentage of 'correct' responses under 'Attitudes' than for 'Knowledge.' Perhaps the respondents may not actually have known the 'correct' food. 'Apples' seemed, nevertheless, to be the most acceptable selection when posed with the question "... In your personal opinion, which of the following do you think they should have?"

No pattern of response could be observed for the 'other' category under 'Practice.' Items recorded were numerous and included: graham wafers, raisins, bread and cheese, bread and jam, peanut butter sandwich, and so forth.

Since September 1960, the West Kootenay Health Unit has sent letters to parents of children as they reached their third birthday, emphasizing the importance of seeking early and regular den-

TABLE 5 Responses by respondents with one or more children between the ages of 3 and 10 years to query regarding desirable between-meal snacks.

Type of food	Knowledge		Attitudes		Practices	
	No.	%	No.	%	No.	%
Apples	65	61.9	90	85.7	62	59.0
Source of quick energy	1	1.0	2	1.9	2	1.9
Whole wheat bread with jam	3	2.8	9	8.6	9	8.6
Cookies			1	1.0	5	4.8
Other			3	2.8	26	24.7
Don't know	36	34.3			1	1.0
Total	105	100	105	100	105	100

TABLE 6 Responses by respondents with one or more children between the ages of 3 and 10 years to query regarding frequency of visits to a dentist.

Number of visits to dentist	Knowledge		Attitudes		Practices	
	No.	%	No.	%	No.	%
Twice per year	92	87.6	85	81.0	52	49.5
Once per year	7	6.7	19	18.0	22	21.0
Once every two years						
Whenever in pain			1	1.0	9	8.6
When permanent teeth decay					6	5.7
Don't know	6	5.7				
No visits					16	15.2
Total	105	100	105	100	105	100

TABLE 7 Responses by respondents with one or more children between the ages of 3 and 10 years to query regarding age at first visit to a dentist.

First visit	Knowledge		Attitudes		Practices	
	No.	%	No.	%	No.	%
Three years old	57	54.3	63	60.0	45	42.9
Before starting school	8	7.6	25	23.8	27	25.7
On starting school			9	8.6	4	3.8
After eruption of permanent teeth			5	4.8	1	1.0
When something is wrong			3	2.8	8	7.6
Some other time	1	1.0			4	3.8
Don't know	39	37.1				
No visits made					16	15.2
Total	105	100	105	100	105	100

tal care. The success of this program appears to be reflected by the data in Tables 6 and 7.

Although 15 per cent of the respondents stated that their children had not yet been to a dentist, no valid conclusions can be drawn from this information, as the ages of the children were not recorded — other than that they were between three and 10 years. Conceivably, these 16 respondents could have had children who had just turned three and were arranging for a dental visit.

For those concerned with forecasting the results of any fluoridation plebiscite in Trail within the near future, the results recorded in Tables 8 and 9 under the category 'Respondent eligible to vote

in municipal elections' should be of interest. Whereas 83.2 per cent of those interviewed had heard of the term 'fluoridation,' only 64.7 per cent were able to relate the process to the reduction of tooth decay. Only 52.6 per cent expressed favour toward fluoridating the local water supply. Of the 35.8 per cent who stated that they did not feel too strongly about the whole matter one way or another (perhaps some were those who were recorded as not knowing the effects), approximately 7 per cent of the total would be required to vote positively for the procedure to receive the necessary 60 per cent majority required by the Municipal Act of British Columbia. Whether they would vote in favour when faced with the neces-

TABLE 8 Awareness of existence and effect of water fluoridation by category of respondent.

Category of respondent	Total number of respondents	Aware of existence		Aware of effect	
		No.	%	No.	%
All respondents	361	291	80.6	231	64.0
Respondents on whom a family folder exists	231	193	83.5	158	68.4
Respondents with one or more children between the ages of 3 and 10 years	105	89	84.8	73	69.5
Respondents eligible to vote in municipal elections	173	144	83.2	112	64.7

TABLE 9 Attitude towards water fluoridation by category of respondent.

Category of respondent	Total number of respondents	Opposed		Neutral		In favour	
		No.	%	No.	%	No.	%
All respondents	361*	33	9.1	139	38.5	188	52.1
Respondents on whom a family folder exists	231	19	8.2	85	36.8	127	55.0
Respondents with one or more children between the ages of 3 and 10 years	105	7	6.7	36	34.3	62	59.0
Respondents eligible to vote in municipal elections	173	20	11.6	62	35.8	91	52.6

*Includes one 'not stated.'

TABLE 10 Affirmative responses by respondents with one or more children between the ages of 3 and 10 years to query regarding the use of fluorides.

Source of fluoride	Knowledge		Practices	
	No.	%	No.	%
Topical application	61	58.1	9	8.6
Supplements	50	47.6	8	7.6
Fluoride tooth paste	101	96.2	46	43.8

sity of making a decision is open to conjecture. One cannot disregard the entrenched practice of 'when in doubt, vote no.'

Table 10 reveals a considerable gulf between knowledge and action on the provision of fluorides. On first inspection, cost of supplements and topical applications might appear to be a deterrent. However, the propensity to seek early and regular dental care without awaiting

the occurrence of a discernible dental problem — as recorded in Tables 6 and 7 — seems to remove cost as a deterrent to utilizing topical applications, supplements, and certainly fluoride tooth paste.

DISCUSSION

Data presented in these 10 tables revealed to the staff of the West Kootenay

Health Unit areas of dental health practice which merit educational emphasis. Water fluoridation, the use of fluoride supplements and topical applications seem to require priority. Dentists in the Trail area have good reasons to convince parents of the value of supplements and topical applications for their children.

Awareness alone of measures recommended to promote dental health is no guarantee of their adoption. This is reflected by comparing (1) knowledge and practice regarding the frequency and times of the day for cleaning teeth (Tables 1 and 2), (2) knowledge and actual use of a fluoride tooth paste (Table 10), and (3) knowledge and the fortunate non-use of chewing gum (Table 3).

The results of this survey clearly add weight to the observation that when engaged in health education, one cannot rely solely upon the dissemination of information to effect a change in behaviour.

The methodology employed in this study could well be used in other health units with minor changes. Among the changes would be the omission from the interview of males over the age of 60 who, in this survey, knew and cared little about the dental health of children. Their impact upon the dental health practices of children is probably minimal, except as voters in a fluoridation plebiscite.

Approximately one-half day every day was devoted to planning appointments. Much of this time was spent in obtaining appointments for husbands who were available for interview only during the evening or on weekends. Since children's health practices are presumably influenced more by the mother than by the father, the question arises whether such a survey would still reveal a sufficiently accurate picture (water fluoridation excepted) if it omitted the fathers. This would at least eliminate the considerable amount of time needed for evening and weekend interviewing and for making appointments.

Fundamentally, the Trail survey was an identification study utilizing the

methodology as a diagnostic procedure to provide base-line data from which a re-defined health education program can be planned. The same methodology can also be utilized for program evaluation. After such a program has operated for a time, it would be possible to assess its effectiveness by resurveying the community, using this same methodology and selecting another community as a control.

Finally, there is every reason to believe that the type of interview schedule here employed and the techniques used to record and compare knowledge, attitudes and habits could effectively be applied to studying other sets of health practices on the same elementary, but nevertheless useful, scale.

SUMMARY

A methodology was devised whereby community knowledge, attitudes and habits with respect to specific health practices could be measured by health unit personnel. When applied to four dental health practices, this survey yielded data whereby a sound educational program may be developed.

The results indicated that knowledge of a recommended procedure is not matched by routine practice of that procedure. This was true for each of the four practices surveyed — oral hygiene, dietary practices, visits to a dentist and use of fluorides. Use of fluorides (topical applications, supplements, fluoride tooth paste) was particularly low.

An educational program derived from a survey of this nature can be evaluated by a similar survey at a later date.

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1963 Survey of Dental Practice

8. Number of patients and patient visits

Bureau of Economic Research

The 1963 survey questionnaire contained two questions concerning patients and patient visits: (1) "How many patient visits (sittings) did you and your auxiliaries have in 1963?" (2) "How many different patients were treated by you and your auxiliaries in 1963?" Many dentists could not give exact answers to these questions but most were able to provide estimates.

AVERAGE DENTIST HAS
1,400 PATIENTS AND 3,400 VISITS

The average Canadian dentist saw 1,417 different patients in 1963. One half of the dentists had patient loads of more than 1,295 patients. The average patient made almost two and a half visits to the dentist. The average dentist, therefore, had over 3,300 appointments during the year.

According to the 1958 Survey of Dental Practice, dentists saw less patients and had less appointments than in 1953. The results of the current survey show that since 1958 there has been a most gratifying increase in productivity. Not only have Canada's dentists made up for the decrease in the previous five year period,

Enquête de 1963 sur la profession dentaire

8. Nombre de patients et de visites

Bureau des recherches économiques

Le questionnaire de l'enquête de 1963 contenait ces deux questions sur les patients et les visites de patients: (1) "Combien de visites de patients vous et vos auxiliaires avez-vous eues en 1963?" (2) "Combien de patients vous et vos auxiliaires avez-vous traités en 1963?" Beaucoup de dentistes n'ont pas pu donner de réponses précises, mais la plupart ont pu fournir des chiffres approchants.

LE DENTISTE MOYEN A 1,400
PATIENTS ET 3,400 VISITES

En 1963 le dentiste canadien moyen a vu 1,417 patients différents. Pour la moitié des dentistes, le nombre des patients dépasse 1,295. Le patient moyen fait deux visites et demie chez le dentiste. Le dentiste moyen a par conséquent plus de 3,300 rendez-vous par an.

L'enquête sur la profession dentaire de 1958 indiquait que le dentiste voyait moins de patients et avait moins de rendez-vous qu'en 1953. L'enquête actuelle révèle un accroissement très satisfaisant de la productivité depuis 1958. Le dentiste canadien moyen a non seulement rattrapé la baisse des cinq années précé-

TABLE 1 Regional variations in median number of patients and visits and average number of visits per patient • Variation du nombre médian de patients et de visites par patient suivant les régions.

Region	Patients	Visits Visites	Visits per patient Visites par patient
Atlantic Maritimes	1,400	3,300	2.2
Québec	1,300	2,700	1.9
Ontario	1,200	3,400	2.6
Prairie Provinces de l'ouest	1,600	3,400	2.1
British Columbia Colombie britannique	1,100	3,200	2.8

but compared to the 1953 figures the average dentist in 1963 saw 32 per cent more patients and had 28 per cent more sittings.

SASKATCHEWAN DENTISTS HAVE
MOST PATIENTS AND VISITS

The average dentist in the Prairie provinces had 3,589 appointments in 1963 while the average Quebec dentist had 2,879. The average number of patient visits of dentists living in the Ontario, Atlantic and British Columbia regions fell between these two figures.

Dentists in Saskatchewan, Newfoundland and Alberta had the most patients; and dentists in British Columbia, Prince Edward Island and Ontario had the least. The average Saskatchewan dentist had 2,142 patients — almost 1,000 patients more than the average dentist in British Columbia.

In those provinces where there were fewer patients per dentist, patients tended to visit the dentist more often during the year. For example, while British Columbia dentists had the smallest number of patients per dentist, they also had the highest number of visits per patient — 2.8. On the average, Saskatchewan dentists saw the most patients but these patients had less than two appointments each.

dentes, mais il a en 1963 32 pour cent de patients de plus et 28 pour cent de séances de plus qu'en 1953.

LA SASKATCHEWAN DÉTIENT LES PLUS HAUTS
CHIFFRES DE PATIENT ET DE VISITES

Le dentiste moyen des provinces des Prairies totalise 3,589 rendez-vous alors que le dentiste moyen du Québec en a 2,879. La moyenne des visites pour les dentistes de l'Ontario, des régions atlantiques et de Colombie britannique s'insère entre ces deux extrêmes.

Les dentistes de la Saskatchewan, de Terre-Neuve et de l'Alberta ont le nombre de patients le plus élevé; et ceux de la Colombie britannique, de l'Ile-du-Prince-Edouard et de l'Ontario ont le nombre de patients le plus bas. Le dentiste moyen de la Saskatchewan a 2,142 patients — presque 1,000 de plus que le dentiste moyen de Colombie britannique.

Dans les provinces où l'on trouve moins de patients par dentiste, les patients ont tendance à voir le dentiste plus souvent. La Colombie britannique par exemple, qui a le nombre le plus bas de patients par dentiste, a aussi le nombre le plus haut de visites par patient: 2.8. En moyenne les dentistes de la Saskatchewan voient le plus de patients, mais ceux-ci ont moins de deux rendez-vous chacun.

Il y a une corrélation très nette, dans les provinces, entre le nombre d'habitants par dentiste et le nombre de patients par dentiste. Dans les provinces où l'on trouve le moins de dentistes par rapport au nombre d'habitants, les dentistes voient en moyenne plus de patients. Mais, ils ne peuvent pas voir chaque patient aussi souvent que les dentistes des provinces où les praticiens sont plus nombreux. Dans ces provinces où le nombre des visites par dentiste est le plus grand, les revenus nets moyens de la pratique privée tendent à être plus hauts.

L'Ile-du-Prince-Edouard, le Québec, Terre-Neuve et la Saskatchewan rapportent les plus fortes augmentations du nombre de patients par dentiste dans les 10 ans de 1953 à 1963. Toutes ces provinces ont accru leur moyenne de patients par dentiste de plus de 50 pour cent. La

There was a positive correlation between provincial population per dentist figures and patients per dentist figures. In those provinces where there were less dentists in relation to the population, dentists on the average saw more patients. But they were unable to see each patient as often as could dentists in provinces where the supply of practitioners was more plentiful. There was a tendency for those provinces with the greatest number of visits per dentist to have the highest mean net incomes from private practice.

The provinces showing the greatest increases in patients per dentist over the 10 years from 1953 to 1963 were Prince Edward Island, Quebec, Newfoundland and Saskatchewan. All of these provinces increased their averages of patients per dentist by more than 50 per cent. British Columbia recorded the smallest increase. Saskatchewan has had the highest average number of patients per dentist in all three surveys of dental practice.

Saskatchewan increased its average number of sittings per dentist more than the other provinces. Prince Edward Island, Nova Scotia and British Columbia showed the smallest gains. The reason Prince Edward Island recorded both the greatest increase in patients and the smallest increase in appointments was that there has been a fall in the number of dental visits per patient in that province. However, the small samples of dentists from Prince Edward Island in the 1953, 1958 and 1963 surveys make comparisons unreliable.

DENTISTS IN LARGER CITIES SEE PATIENTS MORE OFTEN

Dentists living in small communities of 1,000 to 2,500 people saw more patients than dentists living in larger towns and cities. During 1963, they averaged 1,982 patients. Dentists in cities of over half a million population saw the least patients — only 1,082 patients each.

Dentists with the least dental sittings were those living in towns of less than 1,000 inhabitants and dentists in cities of over 500,000. Visits per dentist figures, unlike patient per dentist averages, did not decrease as the size of the city in-

Colombie britannique enregistre l'augmentation la plus faible. La Saskatchewan a conservé la plus haute moyenne de patients par dentiste au cours des trois enquêtes sur la profession dentaire.

La Saskatchewan a augmenté sa moyenne de séances par dentiste plus que les autres provinces. L'Ile-du-Prince-Edouard, la Nouvelle-Ecosse et la Colombie britannique rapportent les hausses les plus faibles. La raison pour laquelle l'Ile-du-Prince-Edouard enregistre à la fois la plus forte augmentation de patients et la plus faible augmentation de rendez-vous est que le chiffre des visites par patient a dégringolé dans cette province. Toutefois un échantillonnage restreint de dentistes de l'Ile-du-Prince-Edouard pour les enquêtes de 1953, 1958 et 1963, rend les comparaisons peu sûres.

LES DENTISTES DES GRANDES VILLES VOIENT LEURS PATIENTS PLUS SOUVENT

Les dentistes habitant les localités de 1,000 à 2,500 habitants voient plus de patients que ceux qui habitent des agglomérations plus grandes. Leur moyenne est de 1,982 patients. Les dentistes des villes qui dépassent un demi million d'habitants voient seulement 1,082 patients — le chiffre le plus bas.

Les dentistes qui ont le moins de séances sont ceux des villes de moins de 1,000 habitants ou de plus de 500,000 habitants. A l'inverse du nombre de patients par dentiste, le nombre de visites par dentiste ne diminue pas à mesure que l'importance de la ville augmente. En effet, les dentistes des grandes villes tendent à avoir plus de séances par patient que ceux des petites localités. Par exemple, dans les villes dépassant 500,000 habitants, les dentistes voient le patient en moyenne trois fois, alors que dans les villes de moins de 2,500 habitants, les dentistes voient le patient moins de deux fois.

AUTRES FACTEURS INFLUANT SUR LES NOMBRES DE PATIENTS ET DE VISITES

Age. — Les chiffres de patients par dentiste et de visites par dentiste augmen-

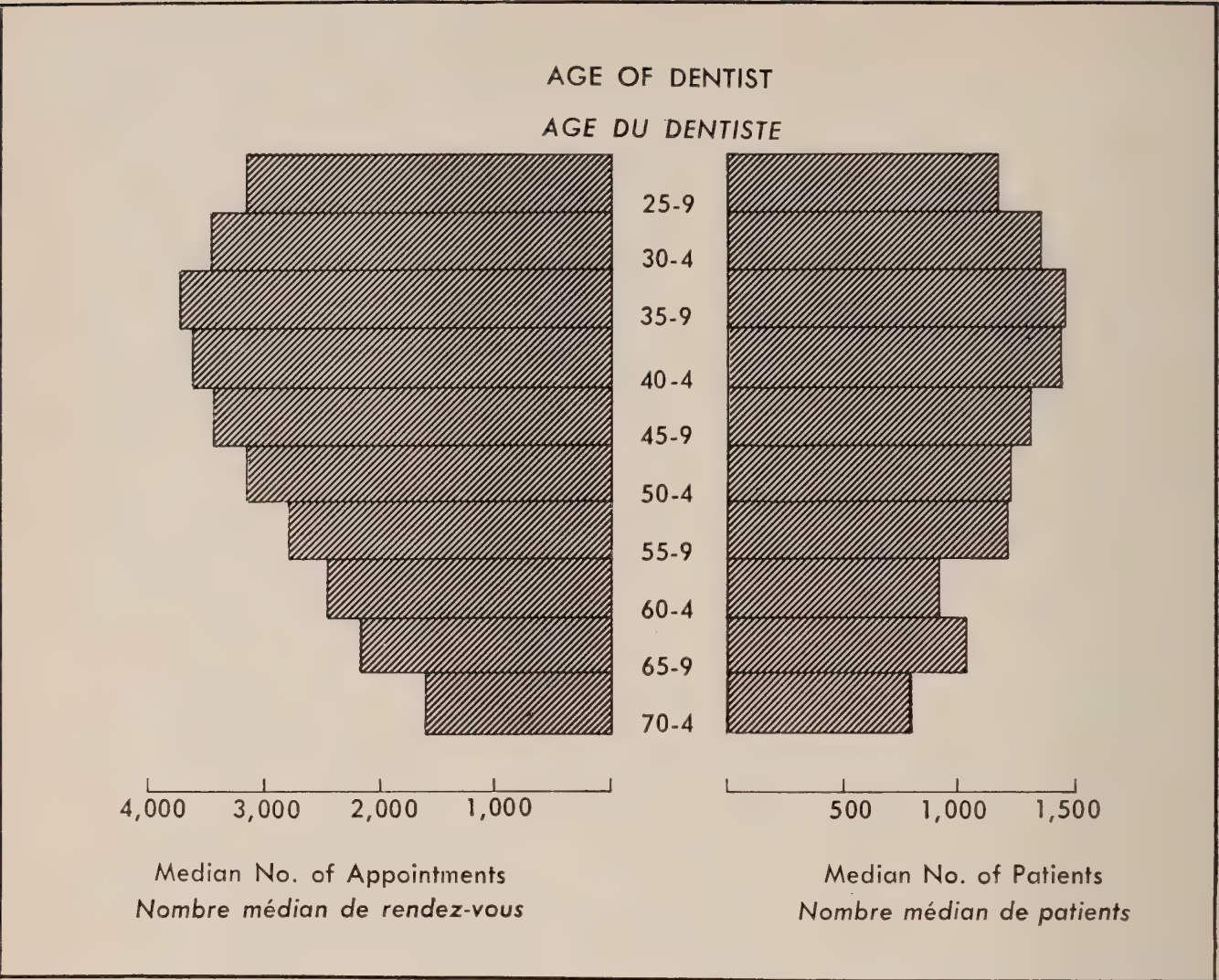


FIGURE 1 Dentists 35-39 have most patients and appointments • Les dentistes âgés 35 à 39 ans ont plus de patients et de rendez-vous.

creased. This is because dentists living in larger cities tended to have more sittings per patient than dentists in smaller communities. Dentists in cities of over 500,000, for example, saw the average patient almost three times, while dentists in towns of under 2,500 people saw each patient less than two times.

OTHER VARIABLES INFLUENCE
NUMBERS OF PATIENTS AND VISITS

Age. — Both patients per dentist and visits per dentist averages tended to increase until the 35 to 39 year old age group of dentists was reached. Then both figures decline. While dentists between 35 and 39 years saw 1,622 patients and had 3,900 sittings, dentists 20 years older had one quarter less patients and 1,145

tent tous les deux, jusqu'au groupe d'âge de 35-39 ans, puis ils décroissent. Alors que les dentistes de 35 à 39 ans voient 1,622 patients et totalisent 3,900 séances, les dentistes qui ont 20 ans de plus ont un quart de patients de moins et 1,145 séances de moins. Les chiffres moyens de visites par patient étaient à peu près les mêmes pour tous les groupes d'âges au-dessous de 70 ans.

Année de graduation. — Les dentistes qui exercent depuis 10 ou 15 ans ont en moyenne 3,856 rendez-vous. Ils totalisent plus de séances que les dentistes qui ont gradué avant 1949 ou après 1953.

Organisation du cabinet. — Les dentistes associés ont plus de patients que les dentistes exerçant seuls et ceux qui partagent les frais. Les moyennes de visites

less sittings. Average numbers of visits per patient were about the same for all age groups of dentists under 70 years.

Year of Graduation. — Dentists who had been in practice for 10 to 15 years had, on the average, 3,856 appointments in 1963. They had more sittings than dentists graduating either before or after the period 1949 to 1953.

Organization of Practice. — Dentists in partnerships had more patients than dentists in solo practice or cost-sharing arrangements. The mean averages of visits per dentist were greater for dentists who were in partnerships or shared costs. The median average was 3,300 for all three methods of practice organization.

Type of Practice. — Dentists who limited their practices had almost twice as many appointments per patient as general practitioners had. Therefore, while specialists saw far less patients (899 versus 1,449) they had more patient visits than dentists in general practice (3,817 versus 3,364).

Orthodontists had the smallest number of patients (357) — one half of them saw less than 274 patients in 1963 — but their patients had an average of 9.2 sittings each. Periodontists had 5.3 visits per patient; on the average, they saw 654 patients in 1963, while one half of them saw less than 400 patients. Oral surgeons had both more patients (2,420) and more sittings (5,861) than general practitioners.

Number of Employees. — Visits per dentist increased with the number of persons employed by the dentist. This is most evident when the number of part-time employees is held constant while the number of full-time employees is increased. With no employees, the dentist had 2,069 visits. With one full-time employee, he had 3,201, an increase of 55 per cent; and with two, he had 4,102 visits.

Extent of 'Busyness'. — Dentists who saw all people requesting appointments but felt overworked saw more patients and had more visits than dentists in the other three categories of 'busyness.' Den-

par dentiste sont supérieures chez les dentistes qui sont associés et ceux qui partagent les frais. Le chiffre médian pour les trois modes d'organisation du cabinet est de 3,300.

Type de pratique. — Les dentistes qui se spécialisent ont deux fois plus de rendez-vous par patient que les omnipraticiens. Les spécialistes voient donc beaucoup moins de patients (899 contre 1,449) et ont plus de visites que les omnipraticiens (3,817 contre 3,364).

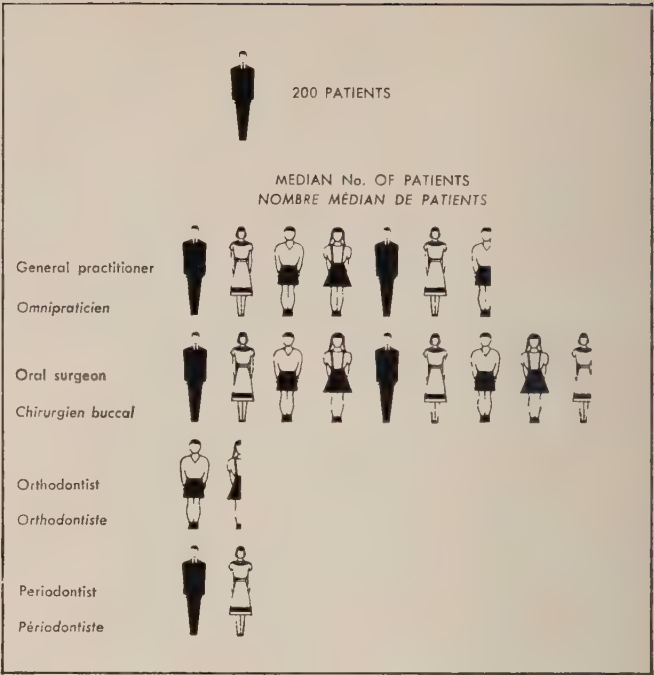
Les orthodontistes ont le nombre de patients le plus bas (357) — et la moitié d'entre eux voient moins de 274 patients — mais leurs patients viennent en moyenne 9.2 fois chacun. Les périodontistes ont 5.3 visites par patient; ils voient en moyenne 654 patients, et la moitié d'entre eux voit moins de 400 patients. Les chirurgiens buccaux dépassent les omnipraticiens pour le nombre de patients (2,420) et de visites (5,861).

Nombre d'employés. — Le nombre de visites par dentiste augmente avec le nombre d'employés du dentiste. Ceci apparaît très clairement quand le nombre d'employés à temps partiel demeure constant et que le nombre d'employés à temps complet augmente. Sans employé, le dentiste a 2,069 visites. Avec un employé à temps complet, il en a 3,201, soit 55 pour cent de plus. Avec deux employés, il a 4,102 visites.

Affairement. — Les dentistes qui reçoivent tous les patients demandant un rendez-vous, mais qui se trouvent surmenés, totalisent plus de patients et plus de visites que les dentistes des trois autres catégories d'affairement. Les dentistes qui se trouvent trop occupés pour traiter tous les patients qui sollicitent un rendez-vous viennent au second rang pour le nombre de patients et de visites. Ces deux groupes atteignent environ 1,600 patients et 3,600 à 3,800 visites. Les dentistes qui estiment avoir assez de patients, mais pas trop, ont 1,200 patients et 3,000 visites. Enfin ceux qui ne se trouvent pas assez occupés comptent moins de 1,000 patients et de 2,400 séances. L'évaluation subjective par les dentistes de leur degré d'aff-

FIGURE 2 One half of all general practitioners see more than 1,300 patients annually • La moitié des omnipraticiens voient plus de 1,300 patients par an.

tists who said they were too busy to treat all people requesting appointments had the next highest number of patients and sittings. These two groups each averaged around 1,600 patients and between 3,600 and 3,800 visits. Dentists who thought they had “enough but not too many” patients had about 1,200 patients and 3,000 appointments while dentists who claimed they were not busy enough had less than 1,000 patients and 2,400 sittings. The dentists’ subjective evaluations of how busy they were, therefore, were substantiated by the number of patients and appointments they actually had.



fairement se trouve ainsi corroborée par les nombres de patients et de visites qu'ils ont eus en réalité.

This report is condensed from the *Survey of Dental Practice, 1963* published by the Bureau of Economic Research.

Ce communiqué est un résumé de l'*Enquête de 1963 sur la profession dentaire* publiée par le Bureau des recherches économiques.

Dental Personnel in Canada, 1966

Le personnel dentaire au Canada, 1966

Bureau of Economic Research

Bureau des recherches économiques

At the beginning of 1966, 6,396 dentists were licensed to practice in Canada. During the past year the number of licensed practitioners increased by 167. This net increase resulted from 341 additions and 174 deletions to the country's dental manpower resources.

Au début de 1966, le Canada comptait 6,396 dentistes licenciés. Leur nombre a augmenté de 167 au cours de l'année dernière. Cette augmentation nette du nombre de praticiens au pays est due au gain de 341 dentistes pour une perte de 174.

TABLE 1 Dentists registered in Canada, 1966 • Dentistes licenciés au Canada, 1966.

Province	Total	Men Hommes	Women Femmes	Province
Newfoundland	43	41	2	Terre-Neuve
Prince Edward Island	31	31	0	Ile-du-Prince-Edouard
Nova Scotia	230	226	4	Nouvelle-Ecosse
New Brunswick	133	132	1	Nouveau-Brunswick
Quebec	1,516	1,497	19	Québec
Ontario	2,687			Ontario
Manitoba	288	288	0	Manitoba
Saskatchewan	207	204	3	Saskatchewan
Alberta	501	494	7	Alberta
British Columbia	760	743	17	Colombie britannique
Canada	6,396			Canada

The greatest single cause of attrition was retirement: 78 dentists retired from practice in 1965. Thirty-nine dentists died during the year and 24 emigrated, 21 of them going to the United States. In addition, 33 dentists were lost from practice for other reasons; all but three of these, however, were engaged in postgraduate studies.

Thirty-six dentists moved from one province to another. Again in 1965 more dentists moved to British Columbia than to any other province. In spite of this, a greater number of dentists left British Columbia than moved to it; six BC dentists went to other provinces and seven to the United States. Although fewer dentists moved to Ontario, Saskatchewan and New Brunswick, these provinces achieved net increases from interprovincial practice relocations. All other provinces lost more dentists than they gained.

For the second year in a row the national dentist:population ratio has improved very slightly. There are now 3,060 people for each licensed dentist — the lowest average recorded in the past five years. In Saskatchewan and Alberta the dentist-to-population figure was the best it has been since 1959 and Quebec's ratio has not been better in four years. In four other provinces the ratio has improved since last year. Only Newfoundland, Prince Edward Island and Manitoba have experienced a deterioration in the supply of dentists in relation to population.

La cause principale des pertes est la retraite: 78 dentistes ont pris leur retraite en 1965. Trente-neuf dentistes sont décédés au cours de l'année et 24 ont émigré, dont 21 aux Etats-Unis. De plus, 33 dentistes ont abandonné l'exercice de leur profession pour diverses raisons; mais tous ceux-ci sauf trois poursuivaient des études post-universitaires.

Trente-six dentistes ont changé de province. Une fois de plus en 1965, la Colombie britannique a accueilli plus de dentistes qu'aucune autre province. Malgré cela, les dentistes qui ont quitté la Colombie britannique sont plus nombreux que ceux qui s'y sont installés; six sont partis dans d'autres provinces et sept aux Etats-Unis. Bien qu'ils aient reçu moins de dentistes, l'Ontario, la Saskatchewan et le Nouveau-Brunswick sont nettement bénéficiaires dans ces changements de province. Toutes les autres provinces ont perdu plus de dentistes qu'elles n'en ont gagnés.

Pour la deuxième année consécutive, le quotient national dentistes/population s'est légèrement amélioré. On compte actuellement un dentiste pour 3,060 habitants, soit la moyenne la plus basse des cinq dernières années. En Saskatchewan et en Alberta, le rapport dentistes/population est le meilleur depuis 1959; au Québec il n'a pas été aussi bon depuis quatre ans. Dans quatre autres provinces, il s'est amélioré depuis l'année dernière. Seuls Terre - Neuve, l'Ile - du - Prince-

The three provinces with the best ratios are British Columbia (1:2,354), Ontario (1:2,505) and Alberta (1:2,896). All other provinces have more than 3,300 residents for each dentist.

Over the past decade the population has grown by one-quarter while the number of dentists has increased by less than one-fifth. In two provinces, Prince Edward Island and Saskatchewan, there are actually less dentists now than in 1956 while the population of these provinces has risen by a modest 8 per cent. In all other provinces there has been an increase in the number of dentists; but Newfoundland and Nova Scotia are the only provinces where dental manpower has grown at a greater rate than the population as a whole.

TABLE 2 Population per dentist and dentists per 10,000 population, 1966 • Population par dentiste, et dentistes par 10,000 de population, 1966.

Province	Population per dentist	Dentists per 10,000 population
Newfoundland Terre-Neuve	11,581	0.9
Prince Edward Island Ile-du-Prince Edouard	3,484	2.9
Nova Scotia Nouvelle-Ecosse	3,309	3.0
New Brunswick Nouveau-Brunswick	4,684	2.1
Québec	3,732	2.7
Ontario	2,505	4.0
Manitoba	3,340	3.0
Saskatchewan	4,594	2.2
Alberta	2,896	3.5
British Columbia Colombie britannique	2,354	4.2
Canada	3,060	3.3

TABLE 3 Certifiable specialties, by province, 1966 • Spécialités reconnues, par province, 1966.

Province	Specialties certified Spécialités reconnues
Newfoundland Terre-Neuve	none aucune
Prince Edward Island Ile-du-Prince-Edouard	os orth perio
Nova Scotia Nouvelle-Ecosse	os orth perio
New Brunswick Nouveau-Brunswick	dph os orth paed perio prosth
Québec	dph os orth perio prosth
Ontario	dph os orth paed perio
Manitoba	os orth paed perio prosth
Saskatchewan	os orth perio
Alberta	diag os orth paed prosth resto
British Columbia Colombie britannique	os orth paed perio

- diag == oral diagnosis • diagnostic
- dph == dental public health • hygiène dentaire
- os == oral surgery • chirurgie buccale
- orth == orthodontics • orthodontie
- paed == paedodontics • pédodontie
- perio == periodontics • périodontie
- prosth == prosthodontics • prothèse
- resto == restorative dentistry • dentisterie restaurative

Specialists. — The certification of specialists is a matter of provincial jurisdiction and, therefore, the number of certi-

Edouard et le Manitoba connaissent une diminution du nombre de dentistes par rapport au nombre d'habitants.

TABLE 4 Number of dentists limiting their practices to a specialty • Nombre de dentistes qui exercent exclusivement une spécialité.

Province	Total	Specialty • Spécialité				
		Oral surgery Chirurgie buccale	Orthodontics Orthodontie	Paedodontics Pédo-dontie	Periodontics Périodontie	Prosthodontics Prothèse
Newfoundland Terre-Neuve	1		1			
Prince Edward Island Ile-du-Prince-Edouard	0	0	0	0	0	0
Nova Scotia Nouvelle-Ecosse	7	2	4		1	
New Brunswick Nouveau-Brunswick	3		3			
Québec	49	11	29		6	3
Ontario	153	37	79	9	28	
Manitoba	11	4	6		1	
Saskatchewan	2		2			
Alberta	22	5	11	1	3	2
British Columbia Colombie britannique	25	7	10	1	7	
Canada	273	66	145	11	46	5

fiable specialties differs from province to province. Alberta, for example, recognizes seven specialties and Newfoundland none.

The Canadian Dental Association now recognizes five specialties — oral surgery, orthodontics, paedodontics, periodontics and prosthodontics. There are 273 dentists specializing in these areas of dental practice. The numbers limiting their practice to each of these specialties are: oral surgery 66; orthodontics 145; paedodontics 11; periodontics 46; prosthodontics 5.

Salaried Dentists. — Twenty more dentists are in full-time salaried positions this year than last. Of 326 dentists employed full-time, 92 are on the staffs of dental schools, 72 are employed in hospitals, 108 in school dental services and 54 in the public health services. In addition, many dentists are employed in these services on a half-time or part-time basis.

Les trois provinces dont les rapports sont les meilleurs sont la Colombie britannique (1/2,354), l'Ontario (1/2,505) et l'Alberta (1/2,896). Toutes les autres provinces comptent un dentiste pour plus de 3,300 habitants.

Au cours des 10 dernières années, la population s'est accrue d'un quart tandis que le nombre de dentistes a augmenté de moins d'un cinquième. L'Ile-du-Prince-Edouard et la Saskatchewan ont en fait moins de dentistes actuellement qu'en 1956, alors que la population de ces deux provinces s'est accrue d'un modeste 8 pour cent. Toutes les autres provinces ont vu leur nombre de dentistes augmenter, mais Terre-Neuve et la Nouvelle-Ecosse sont les seules provinces où le nombre des dentistes ait grandi à un rythme plus rapide que celui de la population.

Spécialistes. — La certification des spécialistes étant placée sous juridiction pro-

The federal government employs 239 dentists full-time and eight dentists part-time. The majority of these — 182 — are employed by the Department of National Defence. Thirty-six are employed by the Department of Veterans Affairs and 29 by the Department of National Health and Welfare.

TABLE 5 Number of practising dental hygienists, 1966 • Nombre des hygiénistes dentaires, 1966.

Province	Number practising En exercice
Newfoundland Terre-Neuve	1
Prince Edward Island Ile-du-Prince-Edouard	3
Nova Scotia Nouvelle-Ecosse	18
New Brunswick Nouveau-Brunswick	3
Québec	4
Ontario	189
Manitoba	12
Saskatchewan	5
Alberta	46
British Columbia Colombie britannique	22
Canada	303

Dental Hygienists. — There are four times as many dental hygienists in practice now as five years ago. Of the 303 licensed hygienists, over three-fifths are located in Ontario. All the other provinces have at least one hygienist in practice. There is one hygienist for every 21 dentists in the country as a whole but four provinces — Prince Edward Island, Alberta, Nova Scotia and Ontario — have better hygienist-to-dentist ratios than the national average.

vinciale, le nombre des spécialités reconnues varie d'une province à l'autre. L'Alberta reconnaît par exemple sept spécialités alors que Terre-Neuve n'en reconnaît aucune.

L'Association dentaire canadienne reconnaît actuellement cinq spécialités — la chirurgie buccale, l'orthodontie, la pédodontie, la périodontie et la prothèse. On compte 273 dentistes qui se spécialisent dans ces domaines. Ceux qui pratiquent une de ces spécialités exclusivement se répartissent ainsi: chirurgie buccale 66; orthodontie 145; pédodontie 11; périodontie 46; prothèse 5.

Dentistes salariés. — Vingt dentistes de plus que l'année dernière occupent des emplois rémunérés à plein temps. Sur 326 dentistes employés à plein temps, 92 enseignent dans les facultés dentaires, 72 travaillent dans des hôpitaux, 108 dans des services dentaires scolaires et 54 dans les services de la santé publique. Tous ces services emploient en outre de nombreux dentistes à mi-temps ou à temps partiel.

Le gouvernement fédéral emploie 239 dentistes à plein temps et huit à temps partiel. La majorité (182) sont employés par le Ministère de la Défense Nationale. Le Ministère des Anciens Combattants en emploie 36 et le Ministère de la Santé nationale et du Bien-Etre social en emploie 29.

Hygiénistes dentaires. — Les hygiénistes dentaires sont quatre fois plus nombreuses qu'il y a cinq ans. Sur 303 hygiénistes licenciées, plus des trois-cinquièmes se trouvent en Ontario. Toutes les autres provinces comptent au moins une hygiéniste. Il y a une hygiéniste pour 21 dentistes dans l'ensemble du pays, mais dans quatre provinces — l'Ile-du-Prince-Edouard, l'Alberta, la Nouvelle-Ecosse et l'Ontario — le rapport hygiénistes/dentistes est supérieur à la moyenne nationale.

Le Ministre fédéral de la Santé prédit l'assurance dentaire pour tous les Canadiens

Le Ministre de la Santé nationale et du Bien-Etre social a ré-affirmé l'intention de son gouvernement d'instaurer, le 1er juillet 1957, un programme d'assurance médicale qui sera la première étape d'un vaste système d'assurance-santé, prépayée et gérée par les pouvoirs publics, qui s'adressera à tous les Canadiens. Le Ministre de la Santé, l'Honorable A. J. MacEachen a fait cette observation dans un discours prononcé devant l'Académie de Dentisterie de Hamilton le 20 avril.

Le Ministre a expliqué qu'Ottawa prenait deux mesures essentielles: la première est de garantir aux Canadiens les meilleurs soins médicaux, quand ils en ont besoin et sans tenir compte de ce que chacun peut payer; la deuxième est de veiller à ce que le pays ait les installations et le personnel nécessaire pour dispenser ces services à tous.

Le Ministre MacEachen a rappelé à ses auditeurs que ces mesures ne sont que les tout premiers pas vers l'objectif final du gouvernement, qui englobe l'ensemble des services de santé, y compris les soins dentaires.

Il n'a pas dit quand une assurance dentaire assez étendue pour couvrir toute—ou presque toute—la population pourrait devenir réalité. Il s'est plutôt prononcé en faveur d'une évolution vers cette assurance, qui débiterait par le traitement systématique et progressif des jeunes enfants et s'accompagnerait d'une vigoureuse campagne pour l'hygiène dentaire, de la fluoration des eaux et d'autres mesures

préventives qui diminuent le développement de la maladie et permettent aux dentistes de traiter un plus grand nombre de patients.

Faisant allusion au fonds fédéral de la santé de \$500 millions, le Ministre a indiqué qu'une juste part de cette somme sera consacrée à la formation du personnel dentaire et à l'expansion des installations scolaires. De plus, a-t-il ajouté, il faut trouver, en intensifiant la recherche, des méthodes nouvelles et meilleures pour détecter, traiter et prévenir les maladies des dents et de la bouche.

M. MacEachen a reconnu que, constitutionnellement, les provinces étaient responsables en matière de santé, mais il a affirmé que les autorités fédérales avaient aussi des obligations dans ce domaine. La bonne santé, a-t-il observé, est un objectif national et le gouvernement fédéral a le devoir de lancer, d'encourager et de soutenir des programmes de santé et de sauvegarder la santé des canadiens en général.

L'Association

Conférence spéciale du Conseil Exécutif avec l'ADA

Le Conseil Exécutif de l'Association a tenu une conférence avec le Conseil d'ad-



Le Conseil Exécutif de l'ADC et le Conseil des Gouverneurs de l'Association dentaire américaine ont consacré une séance de deux jours à l'étude de leurs problèmes communs. La réunion s'est déroulée à Toronto les 12 et

ministration de l'Association dentaire américaine, les 12 et 13 mai à Toronto. Il s'agit de la troisième rencontre avec les dirigeants de l'ADA. La première a eu lieu à Toronto il y a six ans, la deuxième à Chicago les 6 et 7 septembre 1963.

13 mai derniers. Il s'agissait de la troisième réunion des groupes dirigeants des deux associations nationales. Dans la photo à gauche on étudie l'agenda de la conférence, (de gauche à droite) le Président sortant de charge de l'ADC, le docteur P. S. Christie; le Secrétaire de l'ADA, le docteur Harold Hillenbrand; le Secrétaire de l'ADC, le docteur W. G. McIntosh et le Président de l'ADA, le docteur M. K. Hine.

Au premier plan on remarque le docteur J. P. Coupland, Président de l'ADC, qui est fort intéressé par la conférence d'un confrère américain.



Parmi les questions abordées par les délégués canadiens figuraient la Déclaration de l'ADC sur la Commission royale d'enquête sur les services de santé, le statut actuel des mécaniciens dentaires au Canada et le problème connexe des techniciens de laboratoire dentaire, les principes d'une assurance dentaire complète formulés par le gouvernement canadien, le travail des auxiliaires dentaires, le Collège Royal des Chirugiens-Dentistes du Canada, la méthode de la valeur relative pour établir les honoraires, enfin les programmes d'épargne et de retraite.

Les représentants américains ont traité des plans dentaires pour les patients âgés ou infirmes, des assurances payées à l'avance, des auxiliaires dentaires, de la spécialisation, du fonctionnement du bureau de l'ADA à Washington, de l'accreditation des laboratoires dentaires, de l'évaluation et de l'approbation des programmes relatifs aux fournitures dentaires, de produits et d'appareils thérapeutiques, des organismes dentaires régionaux en Amérique, et de l'assurance dentaire nationale pour les enfants.

L'Association dentaire canadienne était représentée par son président, le docteur J. P. Coupland d'Ottawa; son président sortant de charge, le docteur P. S. Christie de Halifax; les docteurs Rémy Langlois de Québec; W. P. Munsie de Vancouver; H. R. MacLean d'Edmonton; W. G. Bruce de Kincardine en Ontario; G. M. Dewis de Halifax, trésorier; W. G. McIn-

tosh de Toronto, secrétaire; R. A. Clappison de Toronto, président du Comité des services dentaires; A. H. Crowson d'Ottawa, président du Conseil de la législation; James McCutcheon de Montréal, président du Conseil de l'enseignement; K. J. Paynter de Toronto, président du Conseil de la recherche; G. C. Swan de Calgary, président du Comité des services auxiliaires; M. A. Rogers de Montréal, président du Comité des spécialistes et de la spécialisation; le Colonel G. R. Covey du Corps dentaire royal canadien; R. A. Connor d'Ottawa, directeur de la division dentaire du Ministère de la Santé nationale et du Bien-Etre social; O. J. Yule de Toronto, membre du Bureau des Gouverneurs; D. W. Gullett de Toronto; H. W. Reid de Toronto; M. J. T. Staddon de Toronto, administrateur des plans d'assurance et de retraite de l'ADC; F. H. Compton, rédacteur; K. L. Croft, secrétaire adjoint, et Mme Isabel Brown, directrice de la recherche économique.

Ottawa abaisse le taux de déduction pour la dépréciation du matériel: l'ADC proteste

De nouveaux règlements de l'impôt sur le revenu, introduits avec le budget fédéral le 29 mars, réduisent de moitié les taux de déduction pour les frais d'installation. Les nouveaux règlements abaissent de 20 à 10 pour cent, le taux usuel

Rapport spécial

Un comité du parlement manitobain s'oppose

Les dentistes doivent conserver l'entière direction et l'entière responsabilité de la santé dentaire du public. Telle est la conclusion qui se dégage du rapport final de 163 pages préparé par un Comité spécial du parlement manitobain après deux ans d'enquête sur le rôle des techniciens et des denturistes dans le domaine des services dentaires au Manitoba. Le ministre provincial de la santé, C. H. Witney, qui présidait le comité, a déposé le rapport le 5 avril.

Le rapport déclare que les appareils dentaires sont un secours nécessaire à la vie et à la santé; ils doivent être convenablement fabriqués, correctement prescrits et ajustés. Il affirme que la responsabilité de prescrire et d'ajuster les appareils doit demeurer celle du dentiste, qui est qualifié et formé pour accomplir le travail spécialisé que cela comporte.

Le comité soutient que seules les personnes compétentes doivent travailler dans la bouche des patients. Il demande que les mécaniciens actuels soient soumis aux dispositions d'une loi des techniciens dentaires du Manitoba (dont l'application serait confiée au ministère provincial de

la santé) et qu'ils soient intégrés dans le domaine de la profession dentaire en qualité d'auxiliaires. Leur expérience devrait être utilisée, mais ils devraient se qualifier en suivant les cours de formation d'hygiénistes et de techniciens dentaires.

Le rapport demande aussi d'interdire l'usage du terme 'denturiste' que le comité juge équivoque car il implique un statut, une compétence et un savoir égaux ou même supérieurs à ceux du dentiste.

Le rapport réclame aussi que l'Université du Manitoba soit chargée des cours de formation dans tous les domaines de la santé dentaire, que cet enseignement soit dispensé à l'université même ou dans les salles de cours pour techniciens.

Le rapport recommande l'élaboration d'un programme d'hygiène dentaire plus vaste, qui comprendrait l'enseignement (1) de toutes les tâches qui sont actuellement assignées aux hygiénistes dentaires au Manitoba; (2) de toutes les tâches touchant à la prothèse complète à l'exception du diagnostic, du plan de traitement, de la préparation de la bouche et

pour la dépréciation sur le matériel dentaire de classe 8. Ce nouveau taux s'applique à tout le matériel acheté à partir de maintenant jusqu'au 1er octobre 1967.

Le Secrétaire de l'ADC, le Dr W. G. McIntosh, a protesté contre cette mesure qui constitue un obstacle supplémentaire pour les jeunes diplômés qui doivent installer un cabinet. Dans une lettre datée du 7 avril, le Dr McIntosh a demandé au ministre des Finances, M. Mitchell Sharp, d'exclure des nouveaux règlements le matériel dentaire de classe 8. Voici le

texte complet de la lettre du Dr McIntosh:

Nous demandons que le matériel dentaire habituellement inscrit dans la classe de capital no. 8 soit exclu du nouveau règlement de l'impôt sur le revenu qui réduit le montant des frais d'installation qui peut être déduit pour diverses classes de valeurs en capital acquis dans la période s'étendant de maintenant au 1er octobre 1967. Nous faisons cette requête pour faire suspendre des dispositions qui sont de nature à décourager les dentistes d'équiper convenablement ou d'agrandir leurs cabinets, et diminuant de ce fait leur contribution

reconnaissance légale des mécaniciens

de la responsabilité globale envers le patient, laquelle appartiendrait au dentiste; (3) enfin certaines tâches supplémentaires relatives à l'emploi de matériaux d'obturation dans les dents. Au terme de ces études, l'hygiéniste travaillerait sous la direction d'un dentiste.

Le comité propose de plus que la Faculté dentaire de l'Université du Manitoba élabore un programme approprié pour la formation de techniciens dentaires, en collaboration avec l'association provinciale des techniciens dentaires.

D'autre part, le comité recommande à l'Association dentaire du Manitoba:

- de publier et de distribuer une échelle d'honoraires et d'avertir les patients de l'existence de son comité de médiation chargé du règlement des différends au sujet des honoraires et des soins,

- d'instituer une procédure suivant laquelle les impressions seraient prises seulement par le dentiste ou ses auxiliaires qualifiés et sous sa direction. Si les patients le souhaitent, leurs appareils complets pourraient ensuite être fabriqués par les techniciens dentaires de leur choix,

sur ordonnance du dentiste. Dans ce cas, les appareils seraient remis au dentiste pour qu'il les pose et les ajuste. En aucun cas les techniciens dentaires ne poseraient ou n'ajusteraient les appareils, ni ne travailleraient dans la bouche,

- d'agrandir l'actuelle clinique de prothèse du Manitoba, à Winnipeg; d'ouvrir d'autres cliniques semblables dans la province, où le besoin s'en fait sentir; d'informer le public des services de prothèse à bas prix, comme cela se fait en Colombie britannique.

Les recommandations de ce rapport final s'accordent avec l'orientation qui apparaissait dans le rapport provisoire déposé le 6 mai 1965 (compte-rendu, pages 612 et 613, numéro du journal de septembre 1965).

Au cours de ses deux années d'enquête, le Comité a tenu des audiences publiques ou a rencontré les parties intéressées à Winnipeg, Regina, Edmonton, Vancouver et Toronto. Ses conclusions et ses recommandations sont fondées sur les informations recueillies lors de ces rencontres ainsi que sur des sources d'informations publiées au Canada et à l'étranger.

potentielle à la santé dentaire du public canadien.

L'abaissement de la déduction pour frais d'installation de 20 à 10 pour cent pour le matériel acheté au cours des prochains 18 mois représente un gros obstacle fiscal supplémentaire pour le dentiste qui a besoin d'acheter du matériel nouveau au cours de cette période.

Il affecte en particulier les nouveaux diplômés pour lesquels le coût moyen de l'installation d'un cabinet moderne s'élève à \$12,000, dont au moins \$10,000 vont au matériel.

Notre Association est d'avis que les dentistes devraient être encouragés à équiper

leurs cabinets d'installations cliniques modernes et, chaque fois que la demande de soins le justifie, à ouvrir une seconde salle d'opération de façon à pouvoir mieux répondre à la demande élevée de soins dentaires. Il a été établi que lorsque les dentistes installent une seconde salle d'opération, leur nombre de patients peut être augmenté de 65 pour cent — ce qui contribue de manière importante à compenser le manque actuel de dentistes au Canada.

Des millions de dollars se dépensent au Canada pour construire de nouvelles facultés dentaires et pour former plus de dentistes. Des règlements qui empêchent les nouveaux diplômés de donner leur pleine mesure ap-

paraissent illogiques et contradictoires.

Nous vous sollicitons respectueusement de vous montrer favorable à cette modification.

W. G. McIntosh, DDS, secrétaire.

Chronique internationale

Le Président Johnson suggère une assurance dentaire pour les enfants

Le Président Lyndon B. Johnson a demandé au Département de la santé, de l'éducation et du bien-être social de mettre à l'étude un projet de participation fédérale à un programme de soins dentaires pour les enfants. C'est dans un discours prononcé le 8 avril à San Antonio que le Président a mentionné le projet, mais il n'a pas précisé qui serait couvert par l'assurance ni comment elle serait financée.

L'Association dentaire américaine a fait observer, à propos du projet du Président, que l'assemblée de ses délégués avait demandé l'année dernière la création d'une assurance nationale pour les enfants, en particulier pour ceux qui sont les moins favorisés, afin que tous les enfants des Etats-Unis puissent bénéficier de soins dentaires modernes.

Il est réconfortant de voir le Président accorder son attention à ce problème important que les dentistes ont à cœur de solutionner, a déclaré l'ADA, ajoutant que l'Association se préparait à collaborer avec l'administration pour organiser une assurance dentaire efficace et réaliste pour les enfants.

Décès du Dr Knut Gard, président de la FDI

Le docteur Knut Gard, président de la Fédération dentaire internationale, est décédé en Norvège le 28 mars à l'âge de 60 ans. Le Dr Gard était aussi secrétaire général de l'Association dentaire norvégienne, poste qu'il occupait depuis 1938.

Le docteur Gard appartenait à une famille de militaires et il choisit d'abord la carrière de son père qui était officier de l'armée norvégienne. Il fut promu officier en 1927. C'est pendant qu'il était

dans l'armée qu'il décida de devenir dentiste; il reçut son diplôme de l'Ecole dentaire norvégienne d'Oslo en 1934.

Au cours de la deuxième guerre mondiale, le Dr Gard contribua à organiser le Front de l'Unité, le mouvement de résistance norvégien, ce qui lui valut d'être envoyé dans un camp de concentration. Un de ses amis rapportait que même là il savait se rendre utile "comme dentiste, comme optimiste et comme ami plein de bonne humeur."

Le Dr Gard était membre honoraire des sociétés dentaires nationales de Finlande, d'Irlande, de Suède, d'Allemagne et des Etats-Unis. Il enseignait également la dentisterie sociale à l'Université d'Oslo. Il laisse sa femme, Liv Henriette, qui est aussi dentiste.

Organismes dentaires

L'Association du Québec recommande de nouvelles écoles pour les dentistes et les hygiénistes

L'Association dentaire du Québec a demandé la création d'une nouvelle faculté dentaire à l'Université Laval, à Québec, et l'agrandissement des deux facultés dentaires de la province, celle de l'Université McGill et celle de l'Université de Montréal. Ces recommandations sont exposées dans un mémoire soumis dernièrement à un comité conjoint des deux Chambres du Parlement de Québec sur l'assurance-santé. Le mémoire réclame aussi l'intensification du recrutement des étudiants dentaires et de la formation du personnel auxiliaire, y compris la création d'une école d'hygiénistes dentaires, ainsi que l'allocation de bourses pour les études post-scolaires en hygiène dentaire publique.

Faisant allusion aux besoins particuliers des zones à population dense et des régions à population dispersée, le mémoire recommande l'allocation de bourses aux étudiants dentaires, des indemnités pour attirer les dentistes, et l'usage de cliniques dentaires mobiles.

L'Association demande également à la division dentaire du ministère provincial

de la santé d'intensifier son programme de mesures préventives et sa campagne de propagande en faveur de l'hygiène dentaire.

Les dentistes de la région du Niagara discutent des activités des mécaniciens

Les nouvelles manœuvres des mécaniciens dentaires pour faire modifier le Dentistry Act de l'Ontario ont suscité une vive discussion lors de la réunion de l'Association dentaire de la Péninsule du Niagara à Fort Erié le 22 avril. Les membres de l'Association ont exprimé l'opinion que:

—les dentistes ne devraient s'adresser qu'aux laboratoires dentaires accrédités et reconnus pour leur éthique professionnelle;

—les sociétés dentaires locales devraient discuter du problème localement, avec leurs représentants au Parlement provincial;

—les dentistes devraient donner des ordonnances précises et complètes, exiger des laboratoires dentaires un travail de grande qualité et payer ce travail à sa juste valeur.

Le conférencier invité était le Dr R. A. Connor, chef de la division de l'hygiène dentaire au Ministère de la santé nationale et du bien-être social d'Ottawa. Le Dr Connor a rappelé à son auditoire qu'il était important de réunir des données exactes sur la santé dentaire du pays, sur la demande effective de soins et sur l'emploi du personnel. Il a demandé la collaboration des dentistes de St. Catharines pour une enquête entreprise par le gouvernement fédéral.

Facultés dentaires canadiennes

Les travaux reprennent à un rythme accéléré à l'UCB

La Faculté dentaire de l'Université de Colombie britannique annonce qu'elle a repris ses travaux d'agrandissement, lesquels permettront de recevoir très pro-

chainement des classes de 40 étudiants et qui assureront des locaux supplémentaires pour la formation des hygiénistes dentaires.

L'année dernière (cf. Journal de novembre, page 739) l'Université avait décidé de ne pas terminer certaines parties du nouvel édifice dentaire, car le montant des soumissions pour la construction s'avérait beaucoup plus élevé que prévu. Il n'est plus nécessaire actuellement de retarder les travaux.

Corps dentaire royal canadien

Le Lieutenant colonel Lauzière prend sa retraite

Le Lieutenant colonel J. A. Lauzière a pris sa retraite le 9 avril, après une longue carrière dans les Forces Armées canadiennes. Il a servi dans l'aviation d'avril 1942 à mars 1943, puis il est passé dans l'armée canadienne où il s'est distingué comme officier d'infanterie aux régiments Royal Scot Fusiliers et South Saskatchewan.

Natif d'Assiniboia, en Saskatchewan, le Lieutenant colonel Lauzière gradua de l'Université de Montréal en 1950. Il fut nommé sous-lieutenant au Corps dentaire royal canadien au cours de sa deuxième année d'études, et fut promu capitaine au moment de sa graduation. Il a depuis servi dans diverses compagnies dentaires au Canada et en Europe, accédant successivement aux grades de major et de lieutenant colonel en mai 1954 et en avril 1964.

Le Lieutenant colonel Lauzière a l'intention d'exercer sa profession à Hull, Québec.

Hygiène publique

Une enquête dentaire de trois ans doit débuter en Nouvelle-Ecosse cette année

Le Ministère de la Santé de Nouvelle-Ecosse lancera cette année une enquête

de trois ans sur la santé dentaire des écoliers de la province. L'enquête sera dirigée par le Dr W. C. King, directeur de la division dentaire du Ministère de la santé de Nouvelle-Ecosse.

Cette étude, qui consistera en une série d'examens d'enfants de moins de 15 ans, aura pour but de déterminer la répartition et la prédominance des maladies dentaires ainsi que l'étendue des soins reçus. Elle servira aussi à évaluer les résultats du plan dentaire de la province, et en particulier l'efficacité des cliniques dentaires mobiles.

Les résultats de l'enquête de Nouvelle-Ecosse serviront à préparer des tables de conversion pour adapter les données de l'Index canadien de l'hygiène dentaire à la méthodologie recommandée par l'Organisation mondiale de la santé.

Fluoration

Le Ministre fédéral de la Santé endosse la fluoration

La fluoration vient d'être approuvée officiellement par le gouvernement fédéral. Le Ministre fédéral de la Santé et du Bien-Etre social, M. A. J. MacEachen a décrit la fluoration comme "la mesure préventive la plus importante de tout programme dentaire réaliste."

"Elle est la méthode la plus efficace, la plus sûre et la moins coûteuse pour diminuer le besoin de soins dentaires," a-t-il déclaré devant l'Académie de Dentisterie de Hamilton le 20 avril.

Cette réduction, a-t-il dit, est nécessaire pour réaliser un équilibre entre l'augmentation de la maladie dentaire dans la population et la capacité de traitement des services qui doivent y faire face. Elle constitue un pas important vers un programme d'assurance dentaire qu'il prévoit pour les années '80.

Ces observations du Ministre représentent peut-être la première déclaration du gouvernement fédéral assumant une politique de fluoration, bien que son prédécesseur, Mlle Judy LaMarsh, se soit déjà

prononcée en sa faveur.

Recherche

Octrois du Conseil de la Recherche aux facultés de Toronto et du Manitoba

Le Conseil national de la Recherche vient d'accorder à 11 professeurs de l'Université de Toronto des subventions s'élevant à \$105,920. Ces subventions pour l'année 1966-67, les aideront à poursuivre des recherches qui vont de l'étude du contenu protéique de l'émail à celle des lignes de croissance de la mandibule.

Les bénéficiaires sont: les docteurs R. C. Burgess \$7,050; M. Goldner \$11,720; R. M. Grainger \$20,645; R. D. Hazelton \$940; A. M. Hunt \$9,745; H. A. Hunter \$4,285; M. C. Johnston \$9,950; M. A. Listgarten \$14,430; A. T. Storey \$19,680; C. D. Torneck \$2,475, et D. G. Woodsirle \$5,000.

Les bourses de recherche dentaire du Conseil national ont été attribuées à Edward Zebrowski, du département de biologie buccale de l'Université du Manitoba et à R. C. Burgess, de la division de la recherche dentaire de l'Université de Toronto.

M. Goldner, de Toronto, a reçu du Conseil une bourse d'assistant de recherche dentaire.

Le Conseil a aussi accordé des bourses de recherche d'été de \$1,000 aux étudiants R. Lundy et F. M. Eggert, de l'Université de Toronto.

Palmarès

Le docteur **M. E. Mickleborough**, diplômé de la promotion 1966 de l'Université de l'Alberta, a remporté le prix Edward H. Hatton (Division sous-graduée) à la 44ème réunion générale de l'Association internationale pour la Recherche dentaire, qui s'est tenue du 24 au 27 mars à Miami Beach, en Floride. Un 'Fellowship' du Fonds canadien pour l'enseignement dentaire a récemment été attribué au Dr Mickleborough.

News from Parliament

National Medical Care Insurance Slated for July 1, 1967

The federal government has reaffirmed its intention to go ahead with a national medicare insurance scheme on the target date of July 1, 1967, regardless of how many provinces have signed up by then.

National Health and Welfare Minister Allan MacEachen announced in the House of Commons May 17 that federal contributions to approved provincial plans will start next year.

"It is proposed to introduce the necessary legislation [before the summer recess] so as to enable the federal government to make contributions to any province having a program in operation on July 1, 1967, which meets the four established principles, irrespective of the number of provincial governments having such programs in operation at that time," he said.

The four principles are that provincial plans must:

- Provide physicians' services;

- Provide universal coverage of the population—that is, a minimum 90 per cent rising toward 95 per cent;

- Provide benefits portable to other provinces;

- Be under public control, that is, be operated by government or by a non-profit agency subject to government audit.

Under the plan, the federal government will pay half the national average cost of physicians' services provided by provincial medical insurance schemes that meet national standards.

Quebec, Saskatchewan, New Brunswick and Newfoundland have reportedly accepted the federal terms; Manitoba, British Columbia and Nova Scotia have

indicated they will accept; Alberta is opposed in principle and Prince Edward Island is objecting to the cost. Ontario has just introduced its own plan (OMSIP) which does not presently meet the federal standards.

Outside the Commons Mr. MacEachen said he still hoped and expected that all 10 provinces would be in the national plan by next year.

"It is up to the provinces now to plan ahead and place themselves in readiness to receive federal contributions," he said.

The last estimate of the cost of providing physicians' services was \$34 per year per person. With all provinces participating, this would entail a national total cost of about \$650 million. The federal government would pay half and the provinces would raise the rest out of their own tax revenues or by charging premiums.

Mr. MacEachen also stated that he hoped soon to introduce legislation to establish the Health Resources Fund. This fund will provide \$500 million of federal funds over 15 years to aid the provinces in constructing facilities for the training of health profession personnel.

The full text of Mr. MacEachen's statement is as follows:

MR. MACEACHEN'S MAY 17 STATEMENT

"Mr. Speaker, the House will undoubtedly recall that last July at the federal-provincial conference the prime minister stated that the federal government would be prepared to make contributions to provinces with respect to medical care programs if such programs met four principles established by the federal government. The hope was expressed at that time that a commencement date of July 1, 1967 would be found to be practicable.

"Subsequently, at a meeting of ministers of health held early this year in Ottawa, it was announced in the final communiqué that several provinces had accepted the federal medical care proposals and had indicated their readiness to commence programs by July 1, 1967. Certain provinces, however, were unprepared to make definite commitments at that time. Nevertheless it was made clear that the objective of the federal government was to commence to make contributions on a nationwide basis by the target date.

"During recent weeks there have been further indications of readiness to proceed on the part of other provinces, through statements made in provincial legislatures. Questions have been raised in this House as to whether the federal government would proceed as from the target date regardless of the number of provinces committed to participate.

"In order to make the position of the federal government quite clear in this regard, and to enable the provinces to plan in an orderly way in advance of the commencement date, I should like to state that the federal government proposes to proceed with the medical care program in the form, and from the date, originally planned. It is proposed to introduce the necessary legislation to enable the federal government to make contributions to any province having a program in operation on July 1, 1967 which meets the four established principles, irrespective of the number of provincial governments having such programs in operation at that time."

Canada and the Provinces

Government Needs Dentists' Guidance, Says Ontario Health Minister

Ontario dentists were reassured by the Minister of Health at their 99th annual convention that the government was out to help, not practise, their profession. Matthew B. Dymond told a May 17 breakfast session: "We are prepared to help but we need the help of the profession. Our motive is not to take over the health professions but rather to ensure that the

services are available to those who need them. The government cannot practise dentistry or medicine; we can only guide, direct and support. We have no intention of taking over any of the professions in the health field."

Dr. Dymond called on the profession to advise his government where to locate a third dental school in Ontario. He also reassured the dentists that the government was looking to the dental profession for "clear direction" in regard to the training and services of dental auxiliaries. The proposal of the Hall Royal Commission to use dental auxiliaries for certain procedures in the care of children's teeth was the main point of difference with the profession last year. Dr. Dymond said: "We have no intention of dictating the training that these people shall have or the services that these people will provide."

The Minister of Health was much concerned with the great fragmentation of health services and the need to co-ordinate them. "You can't break the individual down into specialties; whether he needs treatment for a tooth or a toenail you should know where to send him or preferably to direct the service to the individual. We have too much tendency in the social sciences to push people about." He said the Ontario government was seeking to establish a provincial and several regional health councils that would be comprehensive and all embracing.

The Minister of Health said that it was "purely a matter of economics" that dentistry had not been included in the Ontario Medical Services Insurance Plan (OMSIP). "The funds were not presently available; no doubt in the fullness of time there will be prepayment of total health services in our province.

International Items

ADA Meets in Dallas Nov. 14-17

More than 15,000 dentists and representatives of related health areas are expected to attend the 107th annual session of the

American Dental Association in Dallas November 14-17.

The scientific program will be presented in the Dallas Memorial Auditorium. Approximately 700 dental educators, scientists and practitioners will participate.

The preliminary program of the scientific session will be published in the August 1966 issue of the *Journal of the American Dental Association*.

One of the highlights of the scientific session will be a half-day symposium on dental implications of space flight. Col. Arthur Stumpf of the US Air Force will speak on dental support of man in space and Lt.-Col. I. B. Shannon of the USAF School of Aerospace Medicine will report on salivary secretory changes associated with space flight and stress. Pressure physiology and periodontal health will be discussed by H. W. Lyon, ADA senior research associate.

Further information regarding the ADA session can be obtained from Harold Hiltenbrand, secretary, 211 East Chicago Avenue, Chicago, Illinois 60611, USA.

Paris Dental Meeting Set for Nov. 21-27

Canadian dentists have been invited to attend the 39th annual meeting of Journées Dentaires Internationales in Paris, France, November 21-27. Scientific sessions will be held in the Maison de la Chimie.

This year special attention will be focused on specialty areas in dentistry. Simultaneous translation in four languages will permit foreign dentists to participate in the meeting.

For further information, please write to M. André Leprette, Secrétariat Général des JDIP, 16 rue des Renaudes, Paris 17e, France.

Dental Implant Course in Paris, France, Nov. 14-21

Canadian dentists have been invited to a course in implant dentures at the Lariboisière Hospital in Paris, France, November 14-21. The program, which has been planned for North American par-

ticipants, will cover all methods of implantation, including subperiosteal techniques as well as the latest endosseous methods.

The fee for this course, \$260, is payable as follows: \$100 upon application for admission, and \$160 payable upon arrival at the meeting.

Further information may be obtained from R. Chercheve, 5 Avenue de l'Opéra, Paris, France.

Dental Organizations

Quebec Assn. Recommends New Schools for Dentists and Hygienists

The Quebec Dental Association has asked for the creation of a new dental school at the Université Laval, Quebec City, and enlargement of the province's two existing schools at McGill University and the Université de Montréal. The recommendations were contained in a brief recently submitted to a joint committee on health insurance of the Quebec Upper and Lower Chambers. The brief also urged a step-up in recruitment of dental students, training of auxiliary personnel including establishment of a school for dental hygienists, and grants for post-graduate training in dental public health.

Referring to special requirements of densely populated areas and regions with scattered populations, the brief recommended bursaries for dental students, financial assistance to attract dentists, and the provision of mobile dental clinics.

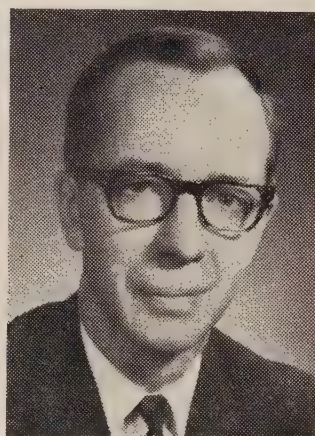
The association also called upon the dental division of the provincial health department to intensify its program of preventive services and dental health education.

Dr. Taylor is President of Ontario Assn.

J. B. Taylor of London was installed as president at the 99th annual convention of the Ontario Dental Association in Toronto May 15 - 18. He succeeds M. G. Boyes of Toronto. W. J. Spence of Toronto was named president-elect.



J. B. Taylor



M. G. Hardy

W. L. Heaslip of Toronto was elected to the ODA Board of Governors representing District 3. Continuing board members are H. N. Beach of Ottawa, District 1; G. F. Rogers of Huntsville, District 2; J. A. Sherman of Toronto, District 3; G. K. Chapman of Fort Erie, District 4; J. H. Moyle of Brantford, District 5; W. A. Burgman of Preston, District 6; A. R. Kaukinen of Sudbury, District 7; and S. P. Smith of Port Arthur, District 8.

Chairman of the Dental Public Health Committee is K. W. Davey of Toronto and R. S. Woollatt of Toronto is chairman of the Benevolence Committee. F. H. Shepherd of Toronto is archivist-historian. Re-appointed as secretary-treasurer and editor respectively were Mrs. W. C. Durham and A. W. Lindsay, both of Toronto.

A new constitution, to become effective on January 1, 1967, was approved by a vote of 315:53. All members of the presently elected Board of Governors, except the president and president-elect, will resign on December 31. Local dental societies will become component societies of the provincial association on January 1, 1967, and will then be represented on a new 60-man Board of Governors. Each component society will elect one delegate and one alternate delegate plus one additional delegate and alternate

delegate for each additional 50 of its members or major portion thereof. It is anticipated that the Ontario Dental Association may seek to replace the Royal College of Dental Surgeons of Ontario as Ontario corporate member of the Canadian Dental Association.

Dr. Hardy is President of Toronto Academy

Recent elections by the Toronto Academy of Dentistry resulted in the appointment of M. G. Hardy as president for the 1966-67 term. Born and educated in Port Perry, Ontario, Dr. Hardy served with the Royal Canadian Dental Corps during World War II before returning to private practice in Scarborough, Ontario. He is a 1942 graduate of the Faculty of Dentistry, University of Toronto.

Also elected to the Academy's Senior Council were Murray Cornish, past president; G. M. Marshall, president-elect; B. J. Levin, secretary; and G. C. Stirling, treasurer.

District councillors are J. T. Hing and W. S. Schwetz, West Toronto; M. A. Kamienski and Bernard Crystal, East Toronto; W. L. Heaslip and H. W. Sorenson, Central District; and W. J. McColeman and D. M. McKee, North Toronto.

Old-Time Dental Office for N. Battleford Pioneer Village

An old-time dental office will be fitted out in a proposed pioneer village at North Battleford, Saskatchewan. Intended as a tourist attraction, the village is a project of North Battleford's Western Development Museum. Numerous separate buildings and shops honouring professions and trades are to be erected along with a vintage church and a vintage school.

The Council of the College of Dental Surgeons of Saskatchewan has donated \$500 toward the proposed dental building. Readers who possess knowledge of any available vintage dental equipment are invited to contact R. J. Fraser, 1137 King Street, North Battleford, Saskatchewan.

Peace River Society Elects New Officers

The Peace River Dental Society which draws members from both British Columbia and Alberta held its annual meeting recently in Fort St. John, British Columbia.

The following officers were elected: H. J. Quinn, Grande Prairie, Alberta, president; G. E. Utas, Grande Prairie, secretary; G. L. McMurray, Beaverlodge, Alberta, treasurer.

Canadian Dental Schools

UBC Construction Plans Speeded Up

The University of British Columbia's Faculty of Dentistry reports that it has now returned to its original building program which will provide immediate accommodation for classes of 40 dental students and additional facilities for training dental hygienists.

Last year (see August 1965 Journal, page 536) the University decided to leave parts of its new dental building unfinished when construction bids turned out to be much higher than anticipated. This deferment is now no longer necessary.

Dr. Jordan to Head UWO Restorative Department

R. E. Jordan has been appointed professor and head of the Department of Restorative Dentistry at the Faculty of Dentistry, University of Western Ontario, effective July 1.

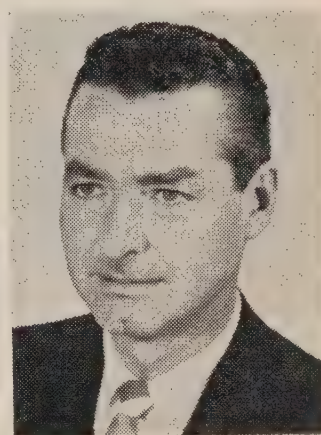
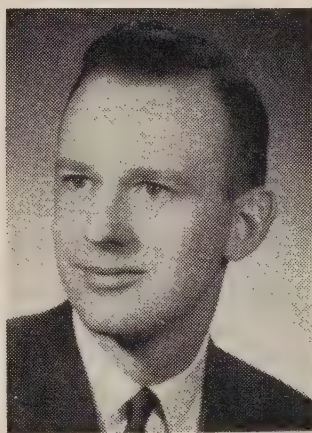
A native of Regina, Dr. Jordan earned his DDS with distinction from the University of Alberta in 1954, and his master of science in dentistry from the University of Washington, Seattle, in 1962.

He was an instructor at the University of Manitoba Faculty of Dentistry from 1959-61; clinical associate at the University of Washington in 1961-62; associate professor and head of the Department of Operative Dentistry at Dalhousie University, Halifax, from 1962-64; research as-

sociate, Cleft Palate Research Centre and assistant professor of operative dentistry at the University of Pittsburgh in 1964-65; and was promoted to associate professor and department head at the University of Pittsburgh last year.

Dr. Jordan has published widely. His first book, *The Human Dentition before Birth*, written together with B. S. Kraus, was brought out in 1965. His second, *Dental Anatomy and its Clinical Applications*, written with B. S. Kraus and Leonard Abrams, will be published later this year.

R. E. Jordan



D. G. Gardner

Dr. Gardner Appointed to UWO Faculty

Dean W. J. Dunn has announced the appointment of D. G. Gardner as associate professor of oral pathology at the University of Western Ontario's new Faculty of Dentistry. Dr. Gardner is currently an assistant professor of oral medicine at the Faculty of Dentistry, University of British Columbia.

Born in England, Dr. Gardner came to Canada in 1951. From 1956 until 1963 he served with the Royal Canadian Dental Corps and was a dental research fellow of the National Research Council from 1963 to 1965.

Dr. Gardner recently became a fellow of the American Academy of Oral Pathology and is a member of the American Dental Association and the International Association for Dental Research.

Royal Canadian Dental Corps

RCDC Crest Donated to US Army Dental Corps Institute

A framed crest of the Royal Canadian Dental Corps was recently presented to the US Army Dental Corps Institute of Dental Research. This goodwill gesture was made in recognition of the many RCDC officers who at various times have been associated with the Institute. Maj. Gen. J. L. Bernier, Assistant Surgeon General and chief of the US Army Dental Corps, accepted the crest on behalf of the Institute. A formal presentation is planned for later this year.

Rotate Canadian Personnel on Cyprus

Personnel of the Canadian Dental Detachment serving with Canada's United Nations Contingent in Cyprus were rotated during April. The detachment consists of one dental officer, one dental assistant and one dental laboratory technician.

Capt. H. Griesbach returned to the Canadian Forces Base at Petawawa, Ontario. Replacing him is Capt. G. R. Nye, formerly stationed at the Canadian Forces Base, Gagetown, New Brunswick.

Canadian Officers in France and Germany Attend US Conference at Garmisch, Germany

Dental officers from No. 4 Field Dental Company, Germany, and No. 35 Field Dental Unit, France, were guests at a dental training conference sponsored by the United States Armed Forces Europe at Garmisch, Germany, May 26-28. At this meeting Maj. A. G. Andrews, an instructor at the RCDC School, Camp Borden, Ontario, presented an essay on local anaesthesia.

RCDC Trains 884 Tradesmen in 17 Years

Eight hundred and eighty-four dental tradesmen have been trained by the Royal

Canadian Dental Corps since August 1949. These include 336 dental assistants, 274 dental laboratory technicians, 78 clinical dental technicians, 11 technical dental therapists, 138 dental storemen and 47 dental equipment technicians.

Six Officers Transferred; Four Officers Leave Corps

Dental officers who were recently transferred to new locations include:

Maj. **J. C. R. R. Roy** from Canadian Dental Detachment, United Nations Emergency Force, Middle East, to No. 15 Dental Company, Montreal;

Maj. **G. I. J. Bisailon** from Canadian Forces Base Petawawa, Ontario, to Canadian Dental Detachment, Middle East;

Maj. **J. L. Craig** from No. 35 Field Dental Unit, France, to No. 1 Dental Detachment, Ottawa;

Maj. **P. H. Guevremont** from Canadian Forces Base Montreal to Headquarters, Mobile Command, Montreal;

Capt. **R. W. C. Adams** from No. 1 Dental Detachment, Ottawa, to No. 35 Field Dental Unit, France; and

Capt. **J. A. Nattress** from Canadian Dental Detachment, United Nations Emergency Force, Middle East, to No. 13 Dental Company, Trenton, Ontario.

The following dental officers recently completed their tour of duty with the RCDC and have been released: Captains **L. W. Armstrong**, Marsden, Saskatchewan; **R. W. R. Horn**, Toronto; **R. T. Mori**, Vernon, British Columbia; and **P. S. Wade**, Toronto.

Lt.-Col. Lauziere Retires

Lt.-Col. J. A. Lauziere retired April 9 after a long and colourful career in the Canadian Armed Forces. From April 1942 to March 1943 he served with the Air Force. Later he transferred to the Canadian army and served with distinction as a Canadian infantry officer with the Royal Scot Fusiliers and the South Saskatchewan Regiment.

A native of Assiniboia, Saskatchewan,

Lt.-Col. Lauziere graduated in dentistry from the Université de Montréal in 1950. He was commissioned as a second lieutenant in the Royal Canadian Dental Corps during his last year of study, and upon graduation he was promoted captain. He has since served with dental companies in Canada and Europe, being promoted major and lieutenant-colonel in May 1954 and April 1964 respectively.

Lt.-Col. Lauziere plans to practise in Hull, P. Quebec.

Maj. H. J. Cashin Dies

Canadian Forces Headquarters has announced the death of Maj. H. J. Cashin on April 11. The 34 year old dental officer was a native of Sydney, Nova Scotia.

Maj. Cashin graduated from the dental faculty of Dalhousie University, Halifax, in 1958. He subsequently served with the Royal Canadian Dental Corps at various army bases, air force stations and naval establishments including Fort Churchill, Manitoba, and HMCS Bonaventure. Maj. Cashin was stationed at HMC Dockyard, Halifax, at the time of his death. He is survived by his wife and two children.

Economics

Canada's First Dental Insurance Plan Announced in BC

Canada's first prepaid dental insurance scheme covering 1,200 members of a British Columbia labour union began July 1.

The plan covers members of Local 280 of the Sheetmetal Workers' and Flat Deck Roofers' Union. With wives and children included, the plan will cover more than 4,800 persons.

The plan was developed by the Dental Services Association of BC (the province's profession-sponsored dental service corporation), the C.U. and C. Health Services Society and the labour union.

W. M. Joiner, Vancouver, president of the Dental Services Association, said den-



The Vancouver local of the Sheetmetal Workers and Flat Deck Roofers has signed up for Canada's first prepaid dental plan. Shown here following signing of the plan are, from left, Joseph Corsby, general manager of CU&C Health Services Society which administers the plan; James Mead, business agent of the union, and Dr. William Joiner, president of the Dental Services Association of British Columbia.

tists are "delighted that they are now in a position to offer the first prepaid dental program in Canada."

A CU&C spokesman said his organization will make similar dental plans available to any groups of employees currently receiving CU&C medical benefits.

Under the dental plan, employers pay the premiums for their employees through 12 cent an hour contributions to the union's welfare fund. A sum of \$6.16 a month will be paid from the fund to CU&C to cover each of the union's 915 married members and their families. The fund will be assessed \$2.60 a month for each of the 250 single employees.

Under a co-insurance arrangement, CU&C will pay 50 per cent of the dentists' fees and the patient will pay the other 50 per cent. As the plan develops, it is hoped that the co-insurance factor will be reduced.

Public Favours Voluntary Medicare Program

A recent Canadian Institute of Public Opinion poll on compulsory medical insurance has revealed what Canadians think about medicare.

An overwhelming majority in Canada want medicare but how it should be administered is the debatable point. In the choice between compulsory or voluntary participation, the people lean toward voluntary contributions.

The majority of adults (52 per cent) say that Canadians should be able to decide for themselves whether or not to join. Forty-one per cent favour compulsory contributions from everyone.

Only in Quebec did more people favour a comprehensive plan, including everyone, rather than a voluntary plan. And even in that province it was close—47 per cent for compulsory contributions, 46 per cent for voluntary. In all other parts of the country 50 per cent or more are for medicare on a voluntary basis.

Public Health

New Manitoba Regional Appointments

The Manitoba health department has announced the appointment of two new regional dental directors within the department's Dental Services Division. They are H. J. Short, regional director for Metropolitan Winnipeg, and J. E. Purdie, regional director for Brandon.

A native of Winnipeg, Dr. Short graduated from the University of Alberta in 1942 and subsequently practised in the Manitoba capital.

Dr. Purdie is also a native Manitoban. He graduated from McGill University,

Montreal, in 1949 and subsequently practised in Brandon. Dr. Purdie is also chief of the dental department of the Brandon Hospital.

Research

NRC Awards to Toronto and Manitoba Faculties

Eleven University of Toronto staff members have been awarded National Research Council grants totalling \$105,920. These awards, for the year 1966-7, will assist investigations ranging from studies of protein in developing enamel to mandibular growth direction in children.

Recipients and the amounts of their individual grants are: R. C. Burgess \$7,050, M. Goldner \$11,720, R. M. Grainger \$20,645, R. D. Hazelton \$940, A. M. Hunt \$9,745, H. A. Hunter \$4,285, M. C. Johnston \$9,950, M. A. Listgarten \$14,430, A. T. Storey \$19,680, C. D. Torneck \$2,475, and D. G. Woodside \$5,000.

NRC dental research scholarships went to Edward Zebrowski, Department of Oral Biology, University of Manitoba, and to R. C. Burgess, Division of Dental Research, University of Toronto.

M. Goldner, Toronto, was awarded an NRC dental research associateship.

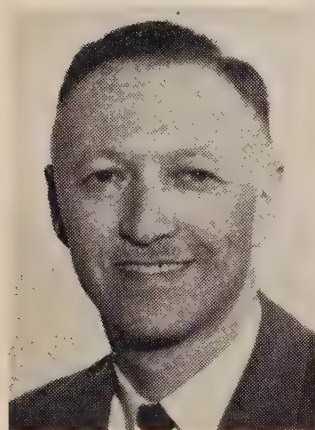
NRC summer and undergraduate dental research scholarships of \$1,000 were awarded to R. Lundy and F. M. Eggert, University of Toronto.

Dentists Urged to Participate in New Science Developments

A major figure in the dental profession's successful campaign for fluoridation, Gordon Nikiforuk returned to Toronto May 17 to urge fellow dentists to greater participation in basic science developments.

Head of dental research at the University of Toronto for a decade and now head of paediatric dentistry at the University of California in Los Angeles, Dr. Nikiforuk was luncheon speaker at the 99th annual meeting of the Ontario Dental Association.

Large scale scientific research was "to



H. J. Short



J. E. Purdie

some degree" making dentists, physicians, engineers and most scientists obsolescent, he said. "The knowledge that today's student painstakingly absorbs in professional courses will have changed in the next five to 10 years. Future educational programs will have to assist students and practitioners alike in adapting to this process. We must devote increased efforts to assessing what is significant and conveying it in a concentrated but basic form," said Dr. Nikiforuk.

Dental education has been considered somewhat unique in its combining of scientific knowledge with the art and techniques of practice, he explained. Today dental students must be taught to take a multi-disciplinary approach. "We must exploit the diverse resources of the university to assist in the solution of their problems."

Dental practice has benefitted in recent years from new findings in biochemistry, crystallography, physics and electron microscopy, Dr. Nikiforuk said. But dentists have failed to concern themselves with polymer and chemical developments so as to come up with a better filling material than nineteenth century amalgam. "We need concerted work with other scientists and engineers to develop a material for dental use. We should not sit idly by waiting for development of new products by commercial corporations that may accidentally be applicable to our needs," he declared.

Awards and Honours

The College of Dental Surgeons of Saskatchewan has honoured 25 of its mem-

bers who have been registered with the College for 40 or more years. During the CDSS annual convention in Moose Jaw April 15-16, commemorative plaques were presented to **C. C. Casewell, C. C. Clermont, A. L. Crozier, W. H. Dixon, G. F. Hiedgerken, G. B. Howard, V. M. Jackman, R. H. Layng, W. T. Lockwood, M. J. MacDonell, C. N. Morphy, A. Myles, E. B. Nagle, M. Robertson, F. R. Smith, H. E. Smith, W. F. Smith, O. R. Thompson, B. A. Urie, F. S. Van Woert, L. D. Walmsley, W. R. Watchler, C. W. Wellington, J. P. Whyte and W. G. Yoerger.**

At the same time **F. S. Van Woert** was named an honorary life member of the College in recognition of 50 years' continuous membership.

Deaths

- Bowlsby, Lloyd Russel. 46. Vancouver. University of Alberta, 1942. 6-5-66.
- Carrothers, Eldon. 74. Brandon, Manitoba. Royal College of Dental Surgeons of Ontario, 1919. 1-5-66.
- Farrell, Vance Ronald. 68. Grimsby, Ontario. Royal College of Dental Surgeons of Ontario, 1920. Associate member CDA. 13-5-66.
- Kent, Leonard Ernest. 66. Vaudreuil, P. Quebec. McGill University, 1923. 25-4-66.
- Markinski, John P. 68. Winnipeg. Royal College of Dental Surgeons of Ontario, 1925. 25-5-66.
- Samuels, Mervyn Michael. 45. Toronto. University of Toronto, 1943. 27-5-66.
- Trelford, William Glenn. 75. Toronto. Royal College of Dental Surgeons of Ontario, 1913. Associate member CDA. 7-5-66.

Accepted Dental Remedies, 1966

American Dental Association, Council on Dental Therapeutics. Ed. 31. Chicago, American Dental Association, October 1965. 275 p. \$3.00

This edition of *Accepted Dental Remedies* shows great improvement over earlier versions. The use of colour-coded pages facilitates references.

The section on therapeutic guides contains two new chapters. The first of these, titled therapeutic suggestions for certain clinical problems, provides the practitioner with a guide to agents for specific clinical problems, such as herpes labialis, herpetic gingivostomatitis, hypersensitive dentine, moniliasis, lichen planus, and many others. The chapter on current therapeutic trends has been added for comment on some newer drugs to which the dentist is exposed and which cannot be conclusively evaluated.

The chapter on emergency treatment is well presented. There is a simple listing of steps to take in all emergencies, and a list for specific emergencies, including central nervous system stimulation, respiratory depression, and allergic reactions.

The chapter on patients receiving medical care is revised and augmented, serving to alert the dentist to special problems that may be encountered when a patient seeks dental service while receiving medication or treatment by a physician.

Clifford Reynolds

Orthodontic Diagnosis

J. S. Beresford. Bristol, John Wright & Sons Ltd., 1965. (Available from The Macmillan Co. of Canada Ltd., Toronto) 79 p. Illus. \$2.50

This handbook, one of a new series, condenses essential criteria for the formulation of a balanced orthodontic diagnosis. It thereby assists the general practitioner who has a wider interest in orthodontics as part of his day-to-day practice. Treatment aims, other than the statement of a hypothetical norm, often form the guideline in the formulation of a diagnosis. Beresford likewise

wishes "to give the patient a dental arrangement which is aesthetically as satisfactory as possible and is functionally sound. By functionally sound is meant not only [an] efficient masticatory mechanism but [one] which, as it functions, tends to maintain itself in a healthy state."

The omission of some preconceived norm is an advance in orthodontic thinking. But in attempting to rationalize thus, one must beware of creating greater confusion by broadening the concept. The manner of presentation thus becomes as important as the inclusion of chosen criteria considered essential for formulation of the diagnosis. This is particularly applicable in a handbook which, by its size, obviously seeks to condense.

Patient examination, as recommended by the author, makes the observer more perceptive to the significance of external characteristics relative to the underlying structures. But I disagree with Beresford's view of full mouth intra-oral radiographs which he relegates to a minor role. Information gleaned from such radiographs is necessary for anticipating space requirements, evaluating individual eruption sequence and timing occlusal development. These are vital considerations in interceptive orthodontic therapy. It is the general practitioner who is best equipped to evaluate the young patient in this manner. What he does may well determine whether or not mutilated occlusion must ensue and whether or not complex therapy will be required.

Correlation between Angle's classification and skeletal balance is only justifiable if we do not classify treatments by reference to particular interocclusal relationships. A diagnostic guide should always describe the difficulty in establishing such a classification in the presence of space loss. A description of this nature brings space requirements into sharper focus provided the clinician is aware whether space loss has resulted from drifting of adjoining units and/or arch segments.

Beresford overly stresses the role of the orofacial musculature—so much so that the inexperienced clinician may conclude that external characteristics determine the outcome of therapy.

The author fails to differentiate between true mandibular overdevelopment and max-

illary underdevelopment in Class III occlusion. The 'deficient' maxilla, a known racial characteristic, is important in relation to differential diagnosis and treatment potential even in the Caucasian race.

Unfortunately also, Beresford bases extraction therapy in part on an analysis of the individual teeth. This leads to piecemeal evaluation and oversimplification of space control. I would have preferred the inclusion of details on the assessment of axial inclination and cuspal interdigitation—often deciding factors in the choice of teeth to be extracted.

Serial extraction, though mentioned, has been oversimplified. The author should have stressed the necessity for complete understanding of the diagnostic criteria essential to the success of this therapy. Many teachers consider serial extraction a task for the specialist—a view which I endorse.

Orthodontic Diagnosis is a well illustrated and readable handbook. But its value is doubtful for the reader who does not possess adequate clinical orthodontic experience. The book may have an application in certain terminal phases of undergraduate orthodontic curricula — particularly those courses which are more extensive than the average North American course.

Orthodontic Diagnosis was designed primarily for the European general practitioner who is expected to assume a greater role in the provision of orthodontic services. Whether this will also happen in Canada is something that remains to be determined by socio-economic forces that may affect the pattern of the profession.

A. W. Eastwood

simplify interpretation of the radiograph for the reader. The last two chapters of the first part of the book deal with the external and internal configuration of each individual tooth. The author describes here the crowns of the different teeth as well as the different surfaces of each particular crown. The neck and root of the different teeth are also extensively covered. When dealing with the internal configuration of the tooth, the author gives a systematic explanation of the anatomical form of the pulp cavity of each group of teeth.

The second part of the book covers in four chapters the anatomy of the permanent teeth, describing individual groups of teeth (incisors, cuspids, bicuspid and molars). Chapter 10 deals with the deciduous teeth and the author here establishes the fundamental differences between the permanent and deciduous dentitions.

The final chapter deals with actual as well as theoretical differences in the dental structures of vertebrates and explains these differences. The author gives special consideration to the differences between lower mammals and man.

Dr. Pagano's book is well presented and extremely easy to read. Throughout the book the reader will find photographs and diagrams which make it simple to interpret and understand the author's viewpoint on the subject of dental anatomy.

This book has been designed for the teaching of dental students. Nevertheless, it could also be valuable for dentists who wish to review the basic concepts of dental anatomy.

O. N. Lucas

Anatomía Dentaria

J. L. Pagano. Buenos Aires, Argentina, Editorial Mundi S.A., 1965. 662 p. Illus. Price not stated.

Dr. Pagano's Dental Anatomy book consists of 11 chapters dealing mainly with the morphology of the human teeth. The first part of the book which covers chapters one to five is dedicated to general considerations of the subject. Chapter 1 is concerned with generalities of the anatomical structures of the oral cavity. Chapter 2 explains in detail the anatomical constitution of the human tooth as well as the physical properties and clinical composition of the enamel, dentine and cementum. Chapter 3 deals with the development and growth of the head, giving special emphasis to the face and particularly to the maxilla and mandibular structure. Odontogenesis and tooth eruption are covered in full detail. In this chapter the author also presents a radiographic study of the dental organ at different ages. The radiographic findings are correlated with a diagram in an attempt to

An Atlas of Pulpal and Periapical Biology

A. L. Ogilvie and J. I. Ingle. Philadelphia, Lea & Febiger, 1965. (Available from The Macmillan Co. of Canada Limited, Toronto) 162 p. Illus. \$5.50

As explained in the preface, the material presented in this book is a verbatim and pictorial reprint of four chapters of the text entitled *Endodontics* by J. I. Ingle et al (Lea and Febiger, 1965). The purpose of this particular publication is to provide an atlas of the biology of pulp and periapical tissues, at a substantial reduction in cost, to those whose interest is centered in these tissues, though not particularly in their treatment. To this end the publication is a success.

Although the last page in the Atlas is numbered 395, it begins at page 233 so that in effect there are only 162 pages.

The first chapter is devoted to a discussion of the development and anatomy of the pulp, physically and structurally. The portion concerned with the structural elements of the pulp is well presented, particularly the pictorial presentation of circulation in

the pulp. By contrast the sections on development and physical anatomy are rather short and incomplete.

A classification and discussion of the aetiology of pulp injury is presented in the second chapter. Although this portion is complete in outline, the use of illustrations, particularly photomicrographs, is limited. If we are to consider this book as an atlas rather than a text this should, perhaps, be regarded an inadequacy. The authors do, however, present an extensive review of the literature pertaining to this subject for the benefit of those who seek a more comprehensive description.

The last two chapters dealing with inflammatory diseases of the pulp and periapical tissues are excellent in presentation and illustration. In my estimation they are perhaps the significant feature of the publication, since they contain several photomicrographs of exceptional quality. As with the previous chapters, they also contain an extensive list of references for those interested in further study.

Considering the material, its manner of presentation and the cost, the *Atlas of Pulp and Periapical Biology* by Ogilvie and Ingle represents a valuable addition to the library of the dental practitioner, teacher and student.

C. D. Torneck

tested by the author and his associates over a period of many years. This information, while not applicable or suitable to all orthodontists or orthodontic offices, can serve as a sound basis from which to plan one's own approach to management problems. Even the experienced orthodontist may find an idea or two which could benefit an established practice.

Many of the chapters deal with facets of orthodontic practice management which are only covered superficially, if at all, in a graduate program. From this standpoint alone the book will be invaluable to the recent graduate.

I recommend this publication to the recently qualified orthodontist as well as to the specialist of many years' standing.

R. P. Mullen

library • bibliothèque

Additions • Acquisitions

Management of an Orthodontic Practice

J. R. Jarabak. St. Louis, Mosby, 1965. 275 p. Illus. \$15.00

Dr. Jarabak's latest publication is undoubtedly one of the most complete in the realm of management in the orthodontic field. It is formulated from years of experience which have yielded workable solutions to everyday management problems. Written with clarity, this book contains facts not theories, bluntness where necessary, thoroughness throughout, and even humour in the early chapters.

The content includes chapters on selecting a suitable location. This aspect is supplemented with illustrations and actual photographs of offices. Associations and partnerships with their related problems are reviewed, as are investments and estate planning for the orthodontist. Also included are chapters on case presentation, patient-dentist-parent relationships, and the business aspect of orthodontic practice, including illustrations of forms and records used. The last two chapters deal with auxiliary personnel and that important thought oft neglected phase of orthodontics—case transfer procedures.

The young orthodontist will find this compilation of worthwhile and thought provoking information invaluable. It represents a distillation of ideas that have been

AITKEN, J. T., CAUSEY, G., JOSEPH J. and YOUNG, J. Z. — A manual of human anatomy. Vol. II. Head and neck. Edinburgh, Livingstone, 1964. 190 p. illus. \$3.75

ANDERSON, P. C. The dental assistant. Albany, N.Y., Delmar Publishers, 1965. 321 p. illus. \$8.75

BRITISH SOCIETY FOR THE STUDY OF ORTHODONTICS. Bristol, John Wright & Sons Ltd., 1964. 172 p. illus.

CUMULATED INDEX MEDICUS. Vol. 5: Jan. - Dec. 1964. Chicago, American Medical Association, 1965. \$40.00

CUSUMANO, C. L. Malpractice law dissected for quick grasping. New York, Medicine-Law Press, Inc., 1963. 132 p. \$11.60

DENTAL CLINICS OF NORTH AMERICA. November 1965. Symposium on Emergencies in dental practice. Philadelphia, Saunders. Pages 543-857.

DETROIT UNIVERSITY. SCHOOL OF DENTISTRY. Proceedings of the Second Workshop — Conference on the teaching of pedodontics, April 2-4, 1965. 112 p.

GAINSFORD, I. D. Silver amalgam in clinical practice. A dental practitioner handbook No. 1. Bristol, John Wright & Sons Ltd., 1965. 79 p. illus. \$2.50

GORDONOFF, T. ed. Toxikologie des fluors; la toxicologie du fluor; the toxicology of fluorine. Symposium, Bern 15-17, Oktober

1962. Basel, Schwabe & Co. Verlag, 1964. 206 p. illus. \$6.95
- HALL, O. Utilization of dentists in Canada. Royal Commission on Health Services. Ottawa, Queen's Printer, 1965. 59 p. \$1.00
- HODGE, H. C. AND SMITH F. A. Fluorine chemistry. New York, Academic Press, 1965. 786 p. illus. \$30.80
- HOTZ, R. Early treatment of cleft lip and palate; International symposium, April 9-11, 1964. University of Zurich, Dental Institute. Berne, Hans Huber, 1964. 153 p. illus. \$8.55
- INGLE, J. I. Endodontics. Philadelphia, Lea & Febiger, 1965. 656 p. illus. \$24.75
- INGRAM, F. L. Radiology of the teeth and jaws; including dental radiography. Ed. 2. London, Edward Arnold, 1965. 256 p. illus. \$10.00
- INTERNATIONAL ASSOCIATION FOR DENTAL RESEARCH. Program and abstracts of papers. 43rd General Meeting, July 22-25, 1965. Toronto, Canada. 158 p.
- IRBY, COL. WM. B. AND BALDWIN, LT. COL. K. H. Emergencies and urgent complications in dentistry. St. Louis, Mosby, 1965. 391 p. illus. \$16.20
- JOHNSTON, J. F. and MAESAKA, R. K. Diagnosis and design for partial dentures. (Practical Dental Monographs, Sept.-Oct., 1965.) Chicago, Year Book, 1965. 22 p. illus.
- KERR, D. A. AND ASH, MAJ. M. Oral pathology; an introduction to general and oral pathology for hygienists. Ed. 2. Philadelphia, Lea & Febiger, 1965. 275 p. illus. \$7.15
- KILLEY, H. C. Fractures of the middle third of the facial skeleton. A dental practitioner handbook No. 3. Bristol, John Wright & Sons Ltd., 1965. 64 p. illus. \$2.50
- KRAUS, B. S. and JORDAN, R. E. The human dentition before birth. Philadelphia, Lea & Febiger, 1965. 218 p. illus. \$16.50
- LAUTERSTEIN, A. M. and BARBER, T. K. Teeth; their forms and functions. Boston, D. C. Heath & Co., 1965. 153 p. illus. \$2.25
- LUMLEY, J. S. P., CRAVEN, J. L. and AITKEN, J. T. Essential anatomy. Edinburgh, Livingstone, 1965. 358 p. illus. \$5.50
- MCGREGOR, I. A. Fundamental techniques of plastic surgery and their surgical applications. Ed. 3. Edinburgh, Livingstone, 1965. 300 p. illus. \$6.25
- MODELL, W. ed. Drugs of choice, 1964-1965. St. Louis, Mosby, 1965. 1018 p. \$18.10
- MONHEIM, L. M. Local anesthesia and pain control in dental practice. Ed. 3. St. Louis, Mosby, 1965. 308 p. illus. \$10.30
- O'BRIEN, W. J. and RYGE, G. Dental materials; a programmed review of selected topics. Philadelphia, Saunders, 1965. 199 p. illus. \$5.95
- OIKARINEN, V. J. The inferior alveolar artery; a study based on gross anatomy and arteriography, supplemented by observations on age changes. (Suo. Hammaslask. toim. v. 61, 1965. Suppl. I.) 131 p. illus.
- PETERSON, S. ed. Comprehensive review for dental hygienists. St. Louis, Mosby, 1965. 286 p. illus. \$8.50.
- ROBERTS, A. C. Obturators and prostheses for cleft palate; their use and construction. Edinburgh, Livingstone, 1965. 94 p. illus. \$2.75
- ROBLES, G. S. The dental profession in retrospect; a glimpse of some of the trials and tribulations of those dedicated Filipino dentists who made the dental profession in the Philippines one of honor and dignity as it is today. Chicago, ADA, 1965. 45 p.
- RUBBO, S. D. and GARDNER, J. F. A review of sterilization and disinfection; as applied to medical, industrial and laboratory practice. Chicago, Year Book, 1965. 250 p. illus. \$7.70
- SAIZAR, P. Traitement de l'édentation totale; éléments pratiques. Paris, Julien Pre-lat, 1964. 262 p. illus.
- SELTZER, S. and BENDER, I. B. The dental pulp; biologic considerations in dental procedures. Montreal, Lippincott, 1965. 272 p. illus. \$11.70
- SMITH, A. L. Microbiology and pathology. Ed. 8. St. Louis, Mosby, 1964. 699 p. illus. \$9.20
- SMITH, R. V. Prosthetic technic laboratory. Iowa, State University of Iowa, College of Dentistry. 99 p. illus.
- STACK, M. V. and FEARNHEAD, R. W. ed. Tooth enamel: its composition, properties, and the fundamental structure. Proceedings of an International Symposium held at the London Hospital Medical College, 6-7 April, 1964. Bristol, John Wright & Sons Ltd., 1965. 219 p. illus. \$11.75
- SUMNICHT, R. W. Preventive dentistry and dental practice. (Practical Dental Monographs, July-August, 1965. 45 p.) Plus: Table Clinic Reviews. Fastest relined technic — Malcolm E. Boone. Use of the rubber dam in children's dentistry, and the continuous welded matrix for insertion of alloy fillings — Theodore R. Ferguson.
- SYKES, G. Disinfection and sterilization; theory and practice. Ed. 2. London, E. & F. N. Spon Ltd., 1965. 486 p. 8 plates. \$15.10
- THORNTON, H. L. and KNIGHT, P. F. Emergency anaesthesia. London, Arnold, 1965. 451 p. illus. \$18.00
- TOWNEND, B. R. Dentistry; target for careers. London, Robert Hale Ltd., 1964. 91 p. illus. \$2.45
- U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. The Dental Service Corporation; organization and development. P.H.S. No. 1274. Washington, D.C. Govt. Printing Office, 1965. 64 p.
- WADE, A. B. Basic periodontology. Ed. 2. Bristol, John Wright & Sons, 1965. 335 p. illus. \$9.00.
- WEINBERG, L. A. Atlas of crown and bridge prosthodontics. St. Louis, Mosby, 1965. 283 p. illus. \$27.00

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The real meaning of a 'no' fluoridation vote

A decision on fluoridation is a political decision. So says J. W. Knutson,¹ former chief dental officer of the US Public Health Service and now professor of preventive dentistry and public health at the University of California at Los Angeles. It matters little whether the choice is between an expression of opinion in favour of this health measure or a decision not to act. Nor does it matter whether that opinion is expressed by administrative fiat of a municipal authority or by the individual citizen at the ballot box.

Anti-fluoridationists have long based their opposition to fluoridation on a program compounded of fear, danger and doubt. Embattled dentists and their allies have countered with campaigns whose ingredients are a mixture of scientific fact, professional dignity, and self-righteous indignation. This puts them on the defensive and places them at a tactical disadvantage.

Viewed in this light, Henry Brooks Adams' somewhat facetious dictum that "practical politics consists in ignoring facts" has a rather authentic ring. The essential point to remember is that issues of public concern must be contested with political arguments. The bare facts about fluoridation, unsupported by persuasive argument, rarely prevail on the hustings.

It is time, as Knutson implies, to resume the attack. Decision makers and voters must be persuaded that a 'no' decision on fluoridation is not just a vote for caution. It means 'yes' we want our children and future adults to have three times as much tooth decay as they need to have. Surely, this line of argument is more effective than endless attempts to rectify the misrepresentations of anti-fluoridationists.

1. What a 'no' vote really means. ADA Fluoridation Reporter. Volume 4, no. 1, 1966.

Une faculté dentaire à Québec?

Il n'y a plus de doute il faut créer une faculté dentaire affiliée à l'Université Laval de Québec. L'Association dentaire canadienne aussi bien que le Collège des chirurgiens-dentistes de la province de Québec ont pris position à ce sujet devant la Commission Royale d'Enquête sur la santé, devant leurs propres membres et devant le public en général.

La faculté dentaire de l'Université de Montréal est en pleine expansion, elle atteindra sous peu la limite maximum au-delà de laquelle elle ne saurait donner un enseignement efficace. Si l'on juge qu'il faut former davantage de

dentistes francophones, Québec semble l'endroit tout indiqué où créer une nouvelle institution d'enseignement dentaire.

Grâce à leur initiative et à leur dévouement, les promoteurs de ce projet ont réussi à faire accepter cette idée. Il s'agit maintenant d'en entreprendre la réalisation. Cette seconde étape sera beaucoup plus ardue et beaucoup plus difficile que la première car personne ne voudrait d'une faculté dentaire qui soit la parente pauvre de la faculté de médecine.

Il faut faire une faculté de chirurgie dentaire qui soit moderne par le niveau de sa pensée avant tout. Il nous faut une institution qui soit indépendante et progressive, donnant un enseignement qui soit indiscutablement d'un niveau universitaire. Pour faire une telle institution, il est indispensable de faire appel à un esprit qui soit parfaitement au courant de la chose universitaire, qui soit brisé aux habitudes et aux exigences de ce milieu.

Pour faire une faculté dentaire valable, il faut donner priorité à la pensée sur le matériel, il faut former un corps enseignant qui soit un tout, une équipe dynamique ayant une certaine unité de pensée. Il y a chez nous si peu de professeurs francophones qu'il faudra probablement créer ce corps enseignant de toutes pièces, cela il faut le faire avant même de recevoir les premiers étudiants. L'expérience des autres universités nous montre à quel point il est difficile de progresser lorsque l'on est embourbé dans les mille et une obligations que nous impose le quotidien.

Avant de construire un édifice et de s'y installer de façon moderne, il faudra recruter des professeurs et trouver l'argent nécessaire pour leur donner une bonne formation. C'est à eux qu'il reviendra ensuite d'établir des programmes et de planifier le développement matériel de leur institution.

Le Canada français manque peut-être de dentistes mais le problème n'est pas d'une urgence telle qu'il faille risquer un faux départ. Il faut prendre le temps nécessaire pour trouver une solution permanente au vrai problème. Il ne suffit pas que la faculté dentaire de Québec ouvre ses portes, il faut surtout qu'elle puisse donner un enseignement de toute première qualité.

letters • courrier

That What We Have We Prize Not

To the Editor:

Two advertisements appeared in the *British Dental Journal* published April 19, 1966. The first was from the Winnipeg General Hospital requiring a dental intern (resident house surgeon) for one year. Applicants were

required to possess a degree in dental surgery. Salary \$3,300 per annum, less room and board.

The second was from the University of Manitoba, Winnipeg, requiring an orthodontic technician. Starting salary \$5,000 per annum, plus a limited amount of private work for professional staff members. Sic transit gloria mundi.

E. N. Screech,
1526 Beach Drive, Victoria, BC

'Oral Sepsis': William Hunter's influence on modern dentistry

C. C. Bourne, DDS, Montreal, P. Quebec*

William Hunter was a pioneer in the application of Lister's teaching to general medicine. By the turn of the century he had arrived at the conception of what is now a commonplace—the influence of chronic local infection on the body generally.¹

The main connection we have locally with this somewhat legendary figure is that on October 3, 1910 he delivered the address at the opening of the Strathcona Medical Building of McGill University's Faculty of Medicine and its Department of Dentistry. The effects of this address, entitled "The Role of Sepsis and of Anti-sepsis in Medicine," are still felt as an undercurrent in today's dentistry.

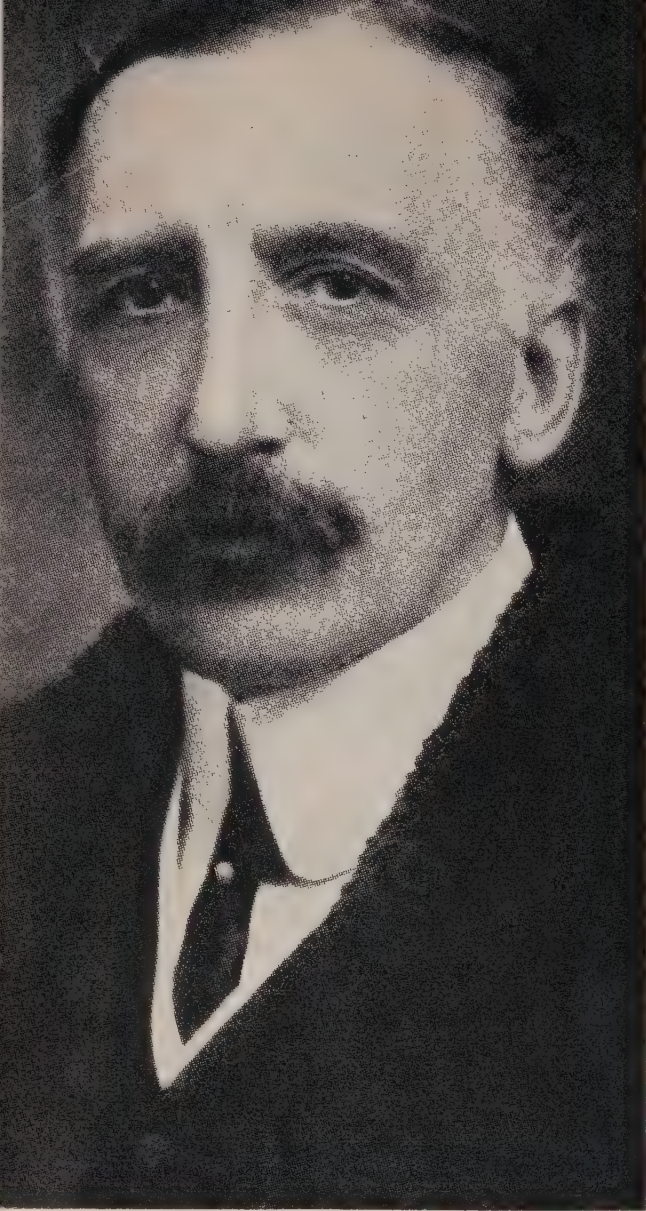
Bremner,² in his sketch on Sir William Hunter, writes disparagingly of Hunter's research and clinical competence. The purpose of this article is to emphasize that Hunter's research was in the field of anaemia and clinical medicine, that he is held to have contributed to increasing the sum total of knowledge in those fields, and that his contributions to dentistry were mainly as a teacher or publicist.

William Hunter was the eldest son of Robert Hunter of Birkenhead. He was born on June 1, 1861. He took first class honours at Edinburgh University where

he graduated MB CM in 1883. He was awarded the Beaney Prize for highest marks gained in anatomy, surgery and clinical surgery, and the Ettles Scholarship for being the most distinguished student in his final year. That year he also gained the MRCS (Eng) diploma. He served as resident house physician in the Royal Infirmary, Edinburgh, and on the staff of the Western Dispensary until he received a grant from the British Medical Association, and went to Leipzig in 1884 where he worked in the Pathological Laboratory. On returning to Edinburgh he continued in the Physiological Laboratory as assistant to the professor. His researches were embodied in a thesis for his MD on the physiology and pathology of blood transfusion and the fate of extravasated blood (1886) for which he received a gold medal. At this time he held a research scholarship of the Grocers' Company.¹

For a short period Hunter took an active and distinguished part in the scientific life of Edinburgh, then went to Vienna for further work, and in 1887 was awarded the John Lucas Walker Studentship at Cambridge for whole-time laboratory research in pathology. He held this post until 1890.¹

During 1888 *The Lancet* published three



Reproduced from Bremner, M.D.K. The story of dentistry. Dental Items of Interest Publ. Co.

long instalments of "An Investigation into the Pathology of Pernicious Anaemia" by Hunter.³ This is historically an interesting article, using the language of an era when microbial infections were first being considered. But most interesting to a dentist is the case history presentation. No mention of teeth is made during the first half of the cases, and from there on the condition of the teeth and mouth is reported in increasing detail and with much emphasis on their poor condition, although no conclusions are drawn.

On leaving Cambridge, he became assistant physician to the West London Hospital and to the London Fever Hospital, and later was appointed to the staff of Charing Cross Hospital and Medical School as assistant physician. At this hospital he did his life work, rising through the various ranks of officer in charge of the electrical department and lecturer in practical medicine and pathology. When

he was made in-patient physician, he carried out a renovation of the medical wards which had been dark and dingy compared with the surgical wards.¹

From his later writings, it appears that the significance of bad oral conditions was drawn to Hunter's attention at the 1891 Hygiene Congress by W. D. Miller, the brilliant American dental professor on the staff of the University of Berlin.⁴

In 1894 Dr. Hunter married Beatrice, daughter of the late Joshua Fielding, MP for Nutfield Priory, Surrey. No children are mentioned as surviving.

When the British Medical Association met here in Montreal in 1897, Hunter was Honorary Secretary of the Section of Pathology and Bacteriology.¹

I like to think that our W. G. Beers met Hunter while he was in this city; at least Beers wrote an editorial and reprinted in full the next two papers by Hunter in the *Dominion Dental Journal*. The first, entitled "The Relations of Dental Diseases to General Diseases,"⁴ and delivered before the Odontological Society of Great Britain, appeared originally in the *Transactions* of that body for January 1899. "Oral Sepsis as a Cause of Disease"⁵ was reprinted in the August 1900 issue of the *Dominion Dental Journal* after first appearing in the *British Medical Journal*.

In "The Relations of Dental Diseases to General Diseases," Hunter does mention his own clinical experience bearing on the subject and in addition he extensively quotes European observations from the preceding 20 years.

In a sub-section titled "The Bacteriology of Dental Caries," Hunter quotes at length from "The Mouth as a Source of Infection" by W. D. Miller. Mention is also made of Galippe and Vignal (1889), Jung (1893) and extensively from Professor Arkovy of Budapest (1898). In another sub-section titled "Diseased Glands in Neck," mention is made of Odenthal (1887), who wrote "Caries of Teeth as Centres of Infection and Causes of Chronic Glandular Swellings of Neck," and also Hugo Starck (1896), whose article "Tuberculous Cervical Glands in Relation to Carious Teeth" had considerable to say about the subject under discussion. So also had Buscke (1894) in "The Tonsils as Portals

of Entry for Pyogenic Organisms.” From the extent of the literature quoted, it is evident that Hunter was not claiming originality, but making known a trend that was apparent in the research of the day.

‘Oral Sepsis’ is a descriptive phrase originated by Hunter to gain emphasis. The phrase so suits its purpose that we still use it—even though we forget that it was coined by Hunter to describe conditions first observed by W. D. Miller. “Oral Sepsis as a Cause of Disease” first appeared in the *British Medical Journal* of July 28, 1900. In this article, pyorrhoea alveolaris is added to suppurating teeth as a cause of bodily ills. Emphasis is placed on bodily resistance and dosage. When bodily resistance is lowered, a mild dosage will cause harm which in robust health would cause no change.

We remember Hunter for his pungent phrases and terms, such as ‘Oral Sepsis,’ and tend to forget that this was but a

phase. He was determined to obtain recognition of the mouth as a source of disease and medical complications. Once he had attained his object, he went on with the mainstream of his medical career. As mentioned, he wrote on pernicious anaemia in 1888. In 1901 he wrote a monograph based on only a dozen cases, but in 1909 he really established his reputation with “Severest Anaemia,” the first of two contemplated volumes, based on wide experience and a wealth of clinical material. He was the first observer to note that the alimentary and nervous systems were more or less severely affected in Addisonian anaemia (as he termed pernicious anaemia), and he recognized the importance of the deposit of iron in the liver.¹

Oral sepsis and a tender tongue were always present, he maintained, but nowadays glossitis and oral sepsis are not encountered in every case of pernicious

Entrance to the Strathcona Medical Building, one of the few sections of McGill University that is essentially the same as it was in 1910 when Sir William Hunter lectured here.



anaemia, and, as aetiological factors, have faded into the background.¹

In his endeavour to rehabilitate the mouth, Hunter particularly condemned 'American dentistry' which he considered a well spring of oral infection. No doubt his views were coloured by the examples of so-called American dentistry that were prevalent in Britain at the turn of the century. Early American dentists, such as Parmly, Gidney, Evans and Miller, had established an excellent reputation in the larger cities of Europe. But they were followed by others with more commercial instincts and less concern for ethical scruples who brought the status of American dentistry to very low ebb. By 1894, there were several dental companies in London, with branches throughout England, who claimed to be and advertised themselves as being American. These companies frequently employed young men from the United States. The services rendered by these individuals were generally inferior although their fees matched those of some of the most famous contemporary dentists in North America.⁶ Thus, it seems clear that Hunter's criticism was primarily aimed at what passed for American dentistry in the United Kingdom at the end of the nineteenth century.

The address at McGill University was a summary of all of Hunter's previous papers. Several of the case histories can be recognized as having appeared in the earlier papers. But the old material was presented with a much better choice of words. Some paragraphs are almost models of pedagogic emphasis, and one thing is certain—the address was delivered in a forceful manner and left no doubt with his audience but that he believed what he was saying. As a teacher, Hunter must have been superb. Possibly a few quotations will prove this point:⁷

"But, as we saw, the regard which the surgeon shows towards sepsis in the domain of surgery is not confined to its removal when present. It has another and far greater object — namely, its prevention. It is not so much in the removal as in the prevention of sepsis that surgical antisepsis has won its great triumphs. . . .

"In my clinical experience septic infection is without exception the most prevalent infection operating in medicine, and a most

important and prevalent cause and complication of many medical diseases. Its ill-effects are widespread and extend to all systems of the body. The relations between these effects and the sepsis that causes them are constantly overlooked because the existence of the sepsis is itself overlooked. For the chief seat of that sepsis is the mouth; and the sepsis itself, when noted, is erroneously regarded as the results of various conditions of ill-health with which it is associated — not, as it really is, an important cause or complication. . . .

"What I desire to impress upon you students, and all students entering the profession, and all those already engaged in the practice of the profession, is, it is 'not a matter of teeth and dentistry.' It is an all-important matter of sepsis and antisepsis that concerns every branch of the medical profession, and concerns very closely the public health of the community. It is not a simple matter of 'neglect of the teeth' by the patient, as is so commonly stated, but one of neglect of a great infection by the profession — a great infective disease for which the patient is not primarily responsible any more than he is responsible for the contraction of typhoid fever or tuberculosis. The condition referred to is that to which I have given the name of 'oral sepsis.'

"The title 'oral sepsis' was first introduced into medical literature in a paper entitled, 'Oral Sepsis as a Cause of Disease.' My object in seeking for a special name, and after consideration in creating this one, was to emphasize the great fact that it is not the absence of teeth but the presence of sepsis, that it is not dental defects but septic effects, that it is not defective mastication but the effective sepsis associated with such dental defects or often present in conditions of gingivitis apart from such defects, that are responsible for the ill-health associated with 'bad' mouths. . . .

"My clinical experience satisfies me that if oral sepsis (and naso-pharyngeal) could be successfully excluded, the other channels by which 'medical sepsis' gains entrance into the body might almost be ignored. . . .

"No one has probably had more reason than I have had to admire the sheer ingenuity and mechanical skill constantly displayed by the dental surgeon. And no one has had more reason to appreciate the ghastly tragedies of oral sepsis which his misguided ingenuity so often carries in its train. Gold fillings, gold caps, gold bridges, gold crowns, fixed dentures, built in, on, and around diseased teeth, form a veritable mausoleum of gold over a mass of sepsis to which there is no parallel in the whole realm of medicine or surgery."

One of the sections which did not appear in earlier papers deals with his experience in the London Fever Hospital, and shows that Hunter was a very practical person and very hard working.⁷

"In 648 cases of scarlet fever admitted into the London Fever Hospital under my care in the four years 1904-07, the incidence of oral sepsis, carefully noted by myself, varied from 25 per cent to 43 per cent. The effect of oral antisepsis — the removal, as far as possible, immediately on admission of every trace of oral sepsis around the patients' teeth and gums by daily swabbings with 1:40 carbolic acid solution—throughout the earlier part of the disease was very striking. The chief complications of the disease were reduced as follows: the incidence of secondary adenitis was reduced from 9.6 per cent in 1904 to 3.3 per cent in 1906, and 1.8 in 1907; of cellulitis of the neck from 5.2 per cent in 1904 to 2.8 in 1906, and *nil* in 1907; of glandular suppuration from 1.7 per cent in 1904 to 0.5 in 1906, and *nil* in 1907. The striking improvement was due to the increased care taken by myself and by my residents and nurses under my instructions. In only one or two cases out of the whole series were any teeth extracted."

After delivering this address, Hunter embarked on a three month tour of Canadian and American medical schools; then back in London he was made dean of the medical school attached to Charing Cross Hospital.

Under his guidance a renovation of the building was achieved and the Museum reactivated. When he resigned to go to war in 1915, he left a thoroughly up-to-date institution.¹

During the war, 1915 to 1917, he was president of the Medical Advisory Committee for the Eastern Mediterranean and Mesopotamia Expeditionary Forces. Later he was consulting physician to the Eastern Command with the temporary rank of colonel A.M.S.¹ Towards the end of the war he led the British Mission to Serbia where an epidemic of typhus and relapsing fever had occurred (more dramatically depicted in *Heads and Tales* by Malvina Hoffman).

In 1920 Hunter published an account of these epidemics. That year he received the C.B. and a high Serbian decoration—that of Grand Officer in the Order of St. Sava — in recognition of his services during the war.

Sir William Hunter acted as examiner for Cambridge and Glasgow Universities and received honorary degrees from them for his scientific work.¹

He always retained his interest in the Charing Cross Hospital and, until the last two months of his life, was regular at the meetings of the school council. His death occurred on January 13, 1937.

Knowledge of the subjects which Hunter espoused has grown apace in the 77 years since he first published. Not much of Hunter's view has survived without modification, but he was certainly not a nonentity and both wrote and spoke out clearly. One needs only to read the last half of *The Story of Dentistry* by Bremner² to find that the man who exerted the greatest influence on North American Dentistry since 1910 was not a citizen of the United States, but an Englishman. This man is held responsible for the extraction of millions of teeth and the advent of specialization in the person of the exodontist. His influence may also be indirectly responsible for the advent of practices restricted to prosthodontics. And who can tell whether the periodontist would have emerged if Hunter had not publicized that infected gums may cause as much trouble as suppurating teeth?

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1. Hunter, William, CB, MD, LL.D., FRCP. Brit. M.J. p. 198, January 23, 1937. Obituary.
2. Bremner, M. D. K. The story of dentistry. Revised Ed. 3. Fourth printing. Brooklyn, New York, Dental Items of Interest Publishing Co., Inc., 1964.
3. Hunter, William. An investigation into the pathology of pernicious anaemia. The Lancet 2:555; 608; 654, 1888.
4. Idem. The relations of dental diseases to general diseases. Odont. Soc. of G.B. Trans. 31:42, 1899. Reprinted in Dominion Den. Jnl. 11:190, 1899.
5. Idem. Oral sepsis as a cause of disease. Brit. M.J. p. 215, July 28, 1900. Reprinted in Dominion Den. Jnl. 12:264, 1900.
6. Wilkinson, F. M. American dentistry in London. Dominion Den. Jnl. 6:144, 1894.
7. Hunter, William. The rôle of sepsis and anti-sepsis in medicine. The Lancet 7:79, 1911.

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Planning for dental health services in Canada

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The American Dental Association recently directed its agencies to develop a national dental care program for youth. Canada is one of the few remaining developed countries without planned dental services for children. This article urges Canadian dentists to formulate an acceptable dental plan for children which will match the 90 per cent utilization rate achieved in certain other countries.

■

L'Association dentaire américaine a récemment demandé à ses organismes de préparer un plan national de soins dentaires pour les jeunes. Le Canada reste un des rares pays qui n'ait pas de plan de soins dentaires pour les enfants. Cet article encourage les dentistes canadiens à élaborer un plan dentaire pour les enfants qui puisse se comparer avec ceux qui existent dans certains autres pays où 90 pour cent des personnes éligibles se prévalent des bénéfices offerts.

ning to provide dental health services for Canadians. Events have moved quickly since that time and it is obvious that our profession must formulate and adopt a plan of action that will be satisfactory to the public and the government as well as to our members. At the present time, however, neither the objects to be achieved in a dental health plan nor the solutions to these objects have been recognized or defined by the Canadian dental profession. Some opinion leaders within the profession are trying hard to correct this state of affairs.

Recently, because of my duties in public health, I have found it necessary to review several topics which are connected with dental health plans and which, taken all together, at least set out some of the problems. In this paper I shall attempt an appraisal of the intentions of the Government of Canada in health matters, the reaction of Canadian dentists to the recommendations of the Commission, the present dental manpower resources in Canada and the means whereby other countries have attempted to solve their dental problems. The impact of plans in other countries on the dental health of children and the professional freedom of dentists will be reviewed in the hope that this information may broaden the perspective of the Canadian dental profes-

The 1964 report of the Royal Commission on Health Services¹ (the Commission) has brought into focus the need for plan-

sion and help it to cope with its increasingly complex dealings with society and government. In addition, some of the advantages of a children's dental program will be explained. It should be noted here that the American Dental Association recently directed its agencies to develop a national dental care program for youth. Thus, Canada is one of the few remaining developed countries without an organized dental service for children.

GOVERNMENT INTENTIONS

Government participation in health matters is not new in Canada. Since 1915 governments have taken on more and more duties in the health field. In 1945 the National Health Act was passed by the Government of Canada and an attempt was made to begin a national health service. The attempt failed but it was obvious that the government had embarked on an unswerving course of participation in all health services, including dental benefits. By 1961 all of the major political parties were in general agreement that governments should take action to fulfil the health needs of their people. The exact form of participation needed to be clarified by a detailed study of all the health disciplines and services. Therefore, a Royal Commission on Health Services was asked to report on future needs and resources and to make recommendations which would provide the best possible health care for all Canadians. The Commission was composed of two physicians, a dentist, a nurse, an economics professor, a financier and the chairman who was a Supreme Court Justice. It received and studied over 300 briefs and called for 26 individual studies — three of them pertaining to dentistry. Many of the 26 individual studies were conducted by statisticians, sociologists and economists and others were compiled by learned people in the health professions. The director of research for the Commission was a sociologist. Without exception, the studies were excellent and brought out many aspects of health services and financing which were previously in the realm of hearsay.

Any discussion of the Commission's report should take into account some marked differences in the interests of dentists in private practice as compared with those of public health dentists, sociologists, politicians and economists. The practising dentist is a busy man. He is concerned, and rightly so, about the patients under his immediate care. Traditionally, he has not been too aware of the fact that two-thirds of the population receive little dental care, that demand for dental care is low and that services are lacking in a large part of the country, because he seldom is faced with these problems. Information on these subjects is not covered adequately in the publications he is likely to read. Public health dentists and welfare agencies see the need and do their part in creating demand for dental care but their pleas for follow-up services often go unheeded by governments. Sociologists and organized groups such as labour unions are convinced that every person has the right to health care and that quality of care includes ample availability of services.² Seemingly, these latter groups have been more successful in transmitting their opinion to politicians. Governments are now in the process of meeting these demands and they have asked the economists' opinion about the proportion of the gross national product that can be diverted to health and how it is to be distributed.

The Commission recommended that "as a nation we now take the necessary legislative, organizational and financial decisions to make all the fruits of the health sciences available to all our residents without hindrance of any kind. . . . This objective can best be achieved through a comprehensive, universal Health Services Program."¹ (The term 'comprehensive' includes all health services and 'universal' includes all Canadians wherever they reside.) Chamard³ has attacked the Commission's philosophy but nevertheless these concepts have played a prominent part in federal-provincial discussions and are likely to be upheld. Because the Commission had noted "the unsatisfactory dental health of the nation and particularly its children,"¹ it devoted 48 of its 200 recommendations to dentistry.

REACTION OF THE PROFESSION

After Volume I of the Commission’s report was published in 1964, the Canadian Dental Association formed a steering committee to gather comments on the recommendations from its corporate members, societies, committees and councils. The steering committee’s evaluation of the recommendations was ratified by the Association and thus became its official policy on May 29, 1965. A concise statement of this policy is contained in the 1965 *Transactions* of the Canadian Dental Association.⁴ It would be too much to expect that all of the Commission’s recommendations would meet with the approval of dentists because dentists had little to say in writing the report. On the other hand, it should be noted that the Commission adopted many of the profession’s own proposals.

In general, the Canadian Dental Association approved the recommendations on fluoridation, dental education, research, hospital dental services, services for welfare recipients and subsidies to attract dentists to rural areas. There was concern about the lack of emphasis placed on preventive dentistry. In addition, there were mild protests against plans to provide dental care for expectant mothers. Most severely criticized were recommendations 39 to 41 outlining the establishment of a children’s dental program and recommendations 168 to 173 dealing with the training and use of auxiliaries who would prepare cavities and fill teeth of children in the program. A recent Ontario Dental Association survey⁵ indicated that 85 per cent of dentists in that province were not in favour of the latter proposals. No doubt similar dissatisfaction was expressed by other organizations which sent briefs to the steering committee. The Canadian Dental Association had no other choice than to record the objections and it rejected not only the use of auxiliaries but also the children’s dental program as envisaged by the Commission. I should say at this point that any real or implied criticisms in this paper are not directed at the steering committee members or any of the many fine men in dentistry who are trying sin-

cerely to find solutions to very complicated problems.

MANPOWER RESOURCES

Since no detailed substitute plan was offered to take care of the dental needs of children, even a generation from now, it seems fair to ask if the profession made its decisions on an informed basis. To explore this, the first question might be—Is there a shortage of dentists? Let us look at some dentist:population ratios, keeping in mind that one dentist can look after 850 people. Canada’s ratio may look favourable when compared to that of many countries in the world but it assumes a very low rank when compared to countries of similar economies (Table 1).

If you were a politician in one of Canada’s six provinces with ratios worse than the national average, would you be concerned about the state of dental health of your people if these figures were brought to your attention (Table 2)?

TABLE 1 Dentist:population ratios in selected countries.⁶

Country	Population per dentist
Denmark	1,400
Sweden	1,500
Norway	1,600
Germany	1,700
USA	1,900
Australia	2,500
New Zealand	2,500
France	3,000
Canada	3,100
United Kingdom	3,900
Italy	5,500
India	70,000
Nigeria	1,000,000

TABLE 2 Dentist:population ratios of selected provinces of Canada.⁶

Province	Population per dentist
Newfoundland	11,167
Prince Edward Island	3,375
Nova Scotia	3,859
New Brunswick	4,496
Quebec	3,746
Saskatchewan	4,696

Additional facts are available in the MacFarlane report.⁶ There are 232 counties or census districts in Canada, all represented by politicians. One hundred and fifty-seven of these have dentist:population ratios worse than 1:4,000; 127 have ratios worse than 1:5,000; and 228 have ratios worse than the United States national ratio of 1:1,900. In addition, throughout Canada the dentist:population ratio for cities with over 10,000 population is 1:2,120 but it is only 1:6,060 for smaller cities and rural communities. Dentists who claim that our problem is only one of distribution should try juggling these figures. Other dentists confidently express the opinion that the expansion of dental schools and the creation of new schools will solve the dental manpower requirements. Perhaps they are not aware that the Commission's recommendations on new dental schools were designed only to improve the dentist:population ratio to 1:2,450 by 1991 and that this target is not in sight. Surely it is not unreasonable to expect that in the next quarter century demand for dental care in Canada will at least equal that now existing in the United States where the dentist:population ratio is 1:1,900. In fact, Mann⁷ points out that an additional 56,000 dentists should be added to an estimated 134,000 dentists required in the United States by 1975 if demand for care increases at the same rate as from 1946 to 1958. If the Canadian government does decide on a children's dental program followed by services for adults in the 1980's, nothing short of a dentist:population ratio of 1:1,400 will be sufficient if dentists and hygienists do all the work. The current projection of one dentist for 2,450 citizens, therefore, would be very inadequate were it not for the additional recommendations for dental nurse auxiliaries.

This leads to the second question. Did the dental organizations which moulded the opinions of the Canadian Dental Association⁴ have enough information to judge the New Zealand system of providing dental health care for children? Actually, there are a number of studies from which an appraisal can be made of the effects of the New Zealand plan on the dental health of children and on the at-

titudes and freedom of the dental profession. Gruebbel⁸ was the only investigator to condemn the entire plan. His study was financed by the American Dental Association which was and still is opposed to the New Zealand system. These were some of Gruebbel's (abbreviated) comments: (a) The plan would not suit conditions in the United States where the individual is responsible for his own personal needs. (b) Dental nurses are not trained in the scientific aspects of dentistry. (c) Little consideration is given to space maintenance, growth and development and periodontic conditions. Therefore, dental nurses are not qualified to practise dentistry. (d) The scheme has a deleterious effect on the scientific development of paedodontics because this phase of dentistry is removed from the dental profession. (e) The incomplete program leads New Zealand parents to have a false sense of security regarding their children's dental health. (f) Reliance of the individual on the state for his personal needs causes deterioration of ambition and creativeness. (g) Social legislation has encouraged mediocrity and discouraged personal initiative. In addition to these comments, which were only personal opinions, Gruebbel examined 800 children and considered the treatment to be of poor quality.

Dunning⁹ questioned Gruebbel's assessment of the quality of the nurses' work and stated that New Zealand children were getting a much greater quantity of sound dental care than American children.

Fulton's study¹⁰ was sponsored by the World Health Organization and based on a detailed examination of 4,072 children (five times the number in Gruebbel's study). He too disagreed with Gruebbel and he stated that the quality of treatment was satisfactory. Fulton also pointed out that, even though caries prevalence was high in New Zealand, 90 per cent of cavities were filled (compared to 42 per cent in the United States).

The Saskatchewan government sent a three-man mission to New Zealand in 1962 to investigate the children's dental services.¹¹ The team consisted of a public health dentist who had praised the New Zealand system for many years, an

orthodontist representing the provincial dental association which did not favour the plan, and an administrator employed by the government. The only criticisms came from the representative of the dental association. These had to do with the quality of the training staff, the lack of supervision, the fact that preventive orthodontic services were not possible and the lack of attention accorded preschool children. His comments on the New Zealand social system were similar to those of Gruebbel: "In a state where freedom of choice is of paramount importance, the plan could not function." Although the three members of the Saskatchewan mission wrote separate reports, many of their opinions were similar. They praised the continuous care that all children received from the dental nurses. They noted that the children's oral hygiene was excellent and that reparative services maintained the teeth in an ideal state. The almost compulsory attendance at school clinics led to a very high utilization of services. Activities of the dental nurses were limited and rigidly controlled. They had never attempted to function outside of the children's program. The dental nurses were accepted and praised by the public and the dental profession. One unfortunate aspect of the report of the administrator was the fact that he seemed willing to accept the plan in its entirety and was preparing an estimate of costs of the program for Saskatchewan, apparently with no provision for the addition of preventive measures, supervision and referrals.

Sir John Walsh, dean of the dental school at the University of Otago for many years, has reviewed the impact of the New Zealand plan on the dental health of children in a concise and effective manner.¹² In 1922, dental services for children were almost nonexistent. Now, over 90 per cent of 5 to 13 year old children receive semi-annual attention from the dental nurses while children requiring complicated forms of treatment are referred to dentists. Preschool children are eligible for the free service at the request of parents. While slightly less than 50 per cent of parents of preschoolers seek the service because it is not promoted, this degree of utilization is far

greater than it is in Canada. Although the number of DMF surfaces of teeth of New Zealand children is similar to that of children in many parts of the United States, 82 per cent of teeth are filled in New Zealand as compared to 38 per cent in the United States and even less in Canada. The caries attack rate is decreasing slowly, perhaps as a result of the recently extended fluoridation of water supplies. The number of extractions fell from 407 per 100 school children in 1922 to 19 per 100 in 1960. Space maintainers are rarely required because virtually no spaces are created by the extraction of teeth. Surely this is not second class dentistry or discrimination against children!

Many of the criticisms directed at the New Zealand plan had nothing to do with the children's program. The poor state of dental health of young adults was due to the lack of care provided from age 13½ onward. This defect was recognized and now over 80 per cent of 14 to 16 year old children receive dental care in an adolescent program financed through the government and conducted in private practitioners' offices. The percentage of army recruits wearing or needing dentures fell from 29 in 1952 to 11 in 1958 as a direct result of the increasingly efficient adolescent program.

What has happened to New Zealand's dental profession since 1922? The initial fear that the children's program would interfere with the dentist's private practice has not materialized. The 12 per cent of dentists engaged in the school service do so by choice. Eighty-eight per cent of dentists are still in private practice.¹² Many of them receive a substantial portion of their incomes from the adolescent program. It is probably for this reason that the dentists have resisted attempts to extend the school dental service with its dental nurses to the adolescent group and not because they think that auxiliaries are not good enough for older children. Dental incomes have kept pace with those of other professional groups. The demand for dental services has increased and the dentist:population ratio has improved.

I have dealt with the case of the New Zealand dental nurses at considerable length, partly to indicate why the Commission may have chosen this method of

dispensing dental services for Canadian children, partly to show that many opinions about them are uninformed, and partly to provide a basis for a brief comparison with dental programs for children in Great Britain and the Scandinavian countries.

SOLUTIONS IN OTHER COUNTRIES

When the British National Health Service started in 1948, it was recognized that there were not enough dentists to provide the services and, therefore, school children were to be given top treatment priority. How has this worked out in actual practice? Any assessment of the impact of the National Health Service on the dental health of British children is subject to large errors because the government kept only crude statistics on the numbers of courses of treatment. Only in the last few years were the numbers of fillings and extractions recorded. From reports of the Ministry of Health, it can be estimated that children received seven times as much dental treatment as they did in 1948, but services for children in 1948 were almost nonexistent due to the demand from the adult population. The ratio of total extractions to fillings decreased from 2:1 in 1947 to 1:3.7 in 1963 but the ratio of extractions to fillings in deciduous teeth remained close to 1:1. Farrer-Brown¹³ said last year that five out of seven million British children have decayed teeth in need of repair. Members of the school dental service can only inspect half of the children each year and treat only half of those children found on inspection to need treatment. While added numbers of children are attended by dentists in the National Health Service, the net result is delayed treatment and for something less than a third of the child population. The priority service for children in Great Britain does not begin to approach the efficiency of the New Zealand system where over 90 per cent of school children receive adequate, regular care. The British government is now experimenting with the training and use of supervised auxiliaries of the New Zealand dental nurse type¹⁴ in recognition of the

failure of the school dental service and the shortage of dentists (Table 1). Results of the experiment will be difficult to judge because the auxiliaries are scattered throughout the country and there is no control population with which to compare patients treated by the auxiliaries.

Very few dentists in Great Britain are free to practise without some measure of government control. Only 3 per cent of dentists find it possible to conduct entirely private practices. Sixty-seven per cent of them work under the National Health Service in private offices but patients' fees are set by the government. They are allowed to take private patients but few patients can afford the double tariff. The remainder work in the school or hospital services. Dissatisfaction with conditions of work and financial arrangements is reflected in a recent survey conducted by the British Dental Association. Twenty per cent of dentists said they would withdraw from the health service willingly and an additional 45 per cent would retire 'reluctantly' if called upon by their association.¹⁵

The Scandinavians provide excellent dental care for their children.^{16,17} Norway, Sweden, Denmark and Finland all have better dentist:population ratios than Canada by a factor of two (Table 1). In the major cities of Denmark, 95 per cent of children between the ages of 6 and 16 receive dental care. Dental services for school children are paid for by the state or municipality. These services are provided in clinics by salaried dentists. Many of the dentists are women because they seem to be more content with the regular hours, fixed salaries and child patients than the male dentists who are more competitive. It should be noted that Sweden hopes to extend the state dental service to adults and dentists are worried that their dentist:population ratio of 1:1,500 will not be adequate to meet the demand for service.

DISCUSSION

Canada's federal government has promised a medical care program for 1967. There are indications that a dental pro-

gram for children will be delayed, but not for long after that date. The government's insistence that such programs be universal raises some absolutely staggering problems when one considers that solutions to our dental manpower problems may have to be found in a relatively short period of time.

In Canada we need a definite plan of action that is not clouded by uninformed opinion. To establish such a plan will require an independent investigating committee not only "to study all aspects of auxiliary services"⁴ but to study all aspects of providing dental services for all Canadians. Needless to say, the committee must consist of people who will seek adequate consultation and who are prepared to study all aspects of the situation.

Any plan that the committee formulates must recognize first the government term of 'universality' because this is an established pattern that cannot be ignored. Having settled on the main object of providing dental services for all Canadians wherever they reside and having faith that this is possible, the committee must consider several long range plans and decide on one. Detailed study of the methods used by other countries to provide services will offer guidance. For example, some degree of success has been achieved in New Zealand because a plan was adopted that made use of auxiliaries. The Scandinavians have managed to train an adequate number of dentists. The utilization rate of the children's programs in both areas is over 90 per cent. All of these countries have concentrated on the school system and their children are much better off than the children in Britain where the children's programs are ineffective. In this country, therefore, we need a plan which includes a realistic standard of basic dental care for children because this will prevent pain, preserve teeth and eventually produce a generation of adults who will demand our services. At the same time, additional services requiring advanced skills must be available outside the program.

The matter of staffing depends on the agreement that can be reached between the dental profession and government. It would be wise to make a detailed com-

parison of the costs and effectiveness of using auxiliaries as compared to dentists. If we can show that basic dental services provided by dentists will yield results comparable to those in Denmark and better than those in New Zealand, we must show also how we can achieve a dentist: population ratio of something like 1:1,400 in a reasonable length of time. In other words, if we need an additional five dental schools in the next 10 years we should say so loudly and clearly and not indulge in wishful thinking that one dentist for each 2,500 people can provide the needed services. Second choices may otherwise be unavoidable. For example, the Australian government announced in November 1965 that it would train auxiliaries because there was no hope of obtaining enough dentists in the next 30 years to meet the expected demand for dental services.

No matter who provides the services, a great deal of thought should be given to the provision of most of the basic dental services for children through the school system. This is a common denominator in the successful New Zealand and Scandinavian plans. Combined educational, preventive and treatment programs can be carried out very effectively in the school environment. The Canadian provinces are developing centralized school systems which could ease the dental manpower distribution problem. What is more important, the children who need the services are there. In addition, the children who are unfortunate enough to have poor or indifferent parents will have the opportunity to enjoy good dental health.

The objects of government can be met with satisfaction and with no loss of freedom to the dental profession. I make a very strong plea that the Canadian Dental Association appoint an independent committee which will study in depth the means by which all Canadians may achieve the best possible dental health.

SUMMARY

Canadians are demanding that dental care be made available to all citizens but

to date no realistic plan has been prepared by the dental profession to meet these needs. Experience in other countries indicates that a well planned children's dental program using simplified treatment techniques will save teeth and increase utilization of dental services by children. If such a program, including known preventive measures and the imaginative use of dental education, is adopted we could soon have a new generation of Canadians with sound teeth and healthy mouths. The result would not be a loss of professional freedom but an increased demand for services and increased respect for our profession by our countrymen.

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All expressions of opinion in this article are those of the author and do not necessarily reflect the views of the Canadian Dental Association or the University of Toronto.

1. Canada. Royal Commission on Health Services. 1964—Volume 1. Ottawa, Queen's Printer, 1964.
2. Parsons, Talcott. Social change and medical organization in the United States: A sociological perspective. Amer. Acad. Political and Social Science Annals 346:21, March 1963.
3. Chamard, J. M. Feasibility of introducing a national dental health scheme in Canada following the recommendations of the Hall Commission. A dentist's appraisal. J. Canad. D. A. 31:621, 1965.
4. Canadian Dental Association. Transactions 1965. Report of Executive Council, p. 80.
5. Silver, L. R. Professional and public attitudes on children's dental care in Ontario. J. Ontario D.A. 42:9, May 1965.
6. MacFarlane, B. A. Dental manpower in Canada. Ottawa, Queen's Printer, 1965.
7. Mann, W. R. Meeting the nation's dental manpower needs in the year 1975. J.A.D.A. 64:191, 1962.
8. Gruebbel, A. O. Report on the study of dental public health services in New Zealand. J.A.D.A. 41:275, 422, 574, 1950.
9. Dunning, J. M. Dental caries experience in New Zealand contrasted with that in certain parts of the United States. New England D.J. 4:10, July 1951.
10. Fulton, J. T. Experiment in dental care: results of New Zealand's use of school dental nurses. Geneva, World Health Organization, 1951.
11. New Zealand School Dental Service: reports of observation mission from Saskatchewan, July 1962. Regina, Saskatchewan Dept. of Public Health, 1963.
12. Walsh, Sir John P. The dental nurse. J. Amer. Coll. Dent. 32:62, 1965.
13. Farrer-Brown, L. Planning for dentistry. Brit. D.J. 118:192, 1965.
14. Bingay, J. V. Training school for dental auxiliaries. Brit. D. J. 109:178, 1960.
15. British Dental Association. Dentists and the National Health Service. A BDA occasional paper. London, British Dental Association, 1965.
16. Leslie, G. H. Outlook in public health dentistry in New Zealand and overseas. New Zealand D. J. 59:13, 1963.
17. Morrow, W. H. Public dental services in Scandinavian countries. Brit. D. J. 117:55, 1964.

124 Edward Street

Economic and Social Factors Affecting Demand for Dental Care • There are a number of reasons why people in need of dental care do not seek dental service until an emergency arises. An examination of the social characteristics of those who do seek dental treatment, particularly preventive care, leads one to believe that financial reasons, above all others, lead to dental negligence. This has to be qualified, of course, because 'ability to pay' for dental service is a social-psychological as well as an economic fact. In general terms, that large segment of our population (60 per cent or more) which, for want of a better term, we call the working class (essentially the manual workers of our society as opposed to the non-manual or white collar group) do not utilize the dental services to the same extent as the middle classes. Occasionally the income of those in the 'top earning' group of the working class is greater than the income of those in the 'lowest earning' group of the middle class yet research has shown that they still have different consuming and spending patterns, i.e., different styles of life. In each case the style of life is more closely related to the social-occupation group to which they belong. To a large extent this is associated with the social values which these different groups hold. Middle class values tend to be those which dominate our society and included among them is a heavy emphasis on education, vocation and health. A certain amount 'spills over' onto the working class but, in general, they do not value these elements to the same extent as the middle classes. While claiming to 'recognize' the importance of education in vocational terms parents from the working class in Canada permit their children to drop out of school at the minimum school leaving age because they 'can't afford it,' despite the fact that education is 'free.' One can only assume that the same process operates as far as dental health care, particularly preventive, is concerned. This suggests that a certain amount of coercion is required, as in the case of the minimum school leaving age, to have parents look after the dental health of their offspring. The degree to which society is willing to do this, needless to say, depends upon the importance which is attached to dental and medical health by society, and the degree to which it is felt it should be available to all regardless of cost or social attitude. — B. A. McFarlane. Dental manpower in Canada. Royal Commission on Health Services. Ottawa, Queen's Printer, 1964.

The dentist and the law

To avoid paying malpractice damages, a dentist is legally required to exercise the skill and care exhibited by the 'average' dentist in his locale. Malpractice lawsuits fail unless it is established that a dentist owed and violated a duty to his patient, that the patient suffered harm, and that the dentist's negligence caused the harm. Dentists are liable for acts of negligence committed by their employees. Cardinal points for protection against malpractice suits include: (1) adherence to approved methods of practice, (2) maintenance of adequate patient records, (3) use and retention of radiographs, (4) avoidance of 'guaranteed' results, (5) familiarity with materials and medicaments, and (6) prior understanding concerning fees. The dentist should have adequate malpractice insurance.

■

Pour s'éviter de payer des dommages-intérêts pour négligence, un dentiste est tenu par la loi de dis-

penser des soins et de faire un travail qui soient conformes au niveau moyen existant dans le milieu où il exerce. Les poursuites pour négligence échouent à moins qu'il ne soit établi qu'un dentiste a manqué à un devoir envers son patient, que le patient en a souffert en préjudice, et que ce préjudice est imputable à la négligence du dentiste. Les dentistes sont tenus responsables des actes de négligence commis par leurs employés. Quelques règles essentielles permettent de se protéger contre les poursuites pour négligence, entre autres: (1) rester fidèle aux méthodes de pratique approuvées, (2) garder à jour les dossiers des patients, (3) prendre les radiographies et les conserver, (4) éviter de promettre des résultats garantis, (5) être familier avec les matériaux et les médicaments, (6) se mettre d'accord avec le patient au sujet des honoraires. De plus, le dentiste devrait se munir d'une assurance convenable contre la négligence.

According to the US National Safety Council, 10,200,000 Americans suffered disabling injuries in 1963. Accident costs that year totalled \$16.1 billion. This amount covers lost wages, overhead cost of insurance, property damage in motor vehicle accidents and other indirect costs of work accidents. It also includes \$1.55 billion for medical and dental expenses.

Dental injuries arising from motor vehicle, industrial or public liability acci-

dents are common grounds for insurance claims in which a dentist may be called upon to give expert testimony. Insurance companies value dentists who can advise them about the extent of injury alleged to have been incurred by a claimant. A dentist may be requested to examine the claimant to ascertain the true extent of the alleged dental injuries. This examination must be arranged through the claims adjuster or through the defendant's

solicitor. A direct communication with the claimant and without prior arrangement with the claimant's solicitor—if he has a solicitor — could result in criticism of the dentist. The examination of the claimant is quite impersonal. No treatment is rendered and no advice is proffered. The dentist simply forwards his report to the insurance company upon completion of the examination.

MALPRACTICE AND NON-MALPRACTICE NEGLIGENCE

Malpractice or other negligence can constitute the basis for lawsuits in which a dentist is sued by the patient. Any professional misconduct or unreasonable lack of skill or fidelity in professional duties is regarded as malpractice. Non-malpractice negligence lawsuits may arise when a patient trips over the foot-control of a dental unit, stumbles on a defective staircase or is struck by a falling handpiece or other dental equipment. This type of negligence differs from malpractice.

Malpractice is fundamentally a breach of the legal duty a dentist owes his patient. This duty is that the dentist must possess and exercise the skill and learning possessed and exercised by the average member of his profession in good standing in the community in which he practises. It follows that a dentist must keep abreast of the times to 'possess' skill and learning and must follow approved methods of treatment in 'exercising' or applying his knowledge.

In the mistaken belief that dentistry is an exact science, many patients assume that a practitioner impliedly guarantees the results of his treatments. But the dentist is not an insurer of results. The human body is not a machine. The most skilful dentist can only express the probabilities of what will result from his services. Every ill patient is to some extent beyond the dentist's control. Obscure psychological or physical factors may retard or prevent that which is normally expected from treatments. Thus, individuals react differently to the same recognized treatment no matter how skilfully or cautiously it is administered.

Closely allied are the expectations gen-

erated by advances in the health sciences which induce the public to look for guaranteed results in treatment. Gone is the aura of faith and trust that marked the family doctor of yesteryear. In its place we have the more impersonal relations between today's busy general practitioners and specialists and their more discriminating patients. Squeezed by the mounting cost of health care and dazzled by glowing magazine articles that proclaim miracle cures, these patients are quick to criticize the practitioner whose results do not measure up to expectations.

Psychological factors of the patient-doctor relation may also give rise to complaints and criticism when sympathy and understanding are lacking on the part of the attending practitioner — especially when the end result is unsatisfactory despite the amount of skilful treatment rendered. In these situations the patient may try to evade payment of a professional fee by claiming malpractice as his defence or, indeed, by instituting a malpractice suit against the practitioner.

This trend has been accentuated by the growth of insurance. Since the advent of compulsory motor vehicle liability insurance in Massachusetts, for example, the residents of that state have definitely become more insurance-minded. Moreover, there is a widely held assumption that physicians and dentists are protected by professional liability insurance. In this connection, it is noteworthy that some jurisdictions like Ontario discourage frivolous litigation by resisting claims without merit and by requiring the consent of the practitioner to any settlement of a claim negotiated by the insurer.

PROVING A MALPRACTICE CLAIM

The plaintiff patient cannot win a malpractice suit against the defendant practitioner if he fails to establish (1) that the doctor owed a duty to the patient, (2) that he violated that duty, (3) that the patient suffered injury or harm, and (4) that the doctor's negligence was the proximate cause of the injury or harm.

The plaintiff must ordinarily establish that a defendant doctor violated a duty to his patient and that the defendant

caused or contributed to the injury. But in Ontario, the patient can also require the dentist to show that the accident happened without fault on his part if the injury happened in a manner which does not ordinarily occur without negligence on the part of someone, and the dentist was in exclusive control of the instrument causing injury. This is known as the principle of *res ipsa loquitur*. A dentist is therefore well advised to be prepared to defend his position and not rely upon the difficulties of proof confronting a claimant.

In the average case of this kind a judge and jury of their own knowledge and experience are not competent to determine, without expert dental testimony, whether or not proper and approved practice was followed by the defendant, and, if not, whether such failure caused the injury and damage of which the plaintiff complains. A bad end result does not necessarily imply negligence. Unless the dentist has expressly contracted to do so, he does not impliedly guarantee a good result.

The requirement of expert testimony is not peculiar to malpractice cases. It has long been recognized by the courts that where the issue involves a question requiring for its correct solution scientific or expert knowledge, expert testimony must be introduced by the plaintiff before a jury can be permitted to consider the case.

Certain requirements must be fulfilled before a plaintiff can introduce a dental opinion in a negligence action. The witness must be qualified to give an opinion on whether or not the defendant has complied with the standard of care of a dentist in his community or locality. The qualification of a dental witness presents a preliminary question for the trial judge, and his decision is final unless it is erroneous as a matter of law.

In most instances the qualification of a dental witness or the admissibility of his testimony depends on whether or not (1) he is engaged in the same type of practice or specialty as that practised by the defendant, and (2) he has first-hand experience of the practice in the defendant's community.

The first requirement, that of similar

practice or specialty, stems from the necessity that competent and relevant evidence usually is needed in order to prove the breach of the particular duty owed by the defendant to the plaintiff under the circumstances. If the defendant is a general practitioner and the particular case arose out of his treatment of the plaintiff in such capacity, then a general practitioner may testify as to the standard of care applicable to the defendant. If the defendant is a dentist or a specialist of a certain branch of dentistry and the nature of the alleged malpractice is within the area of the defendant's specialty, courts as a general rule permit only a comparable specialist to express an opinion as to the defendant's conduct. For example, it would be folly to permit an internist or gynaecologist to express an opinion on the conduct of an orthopaedic surgeon in the setting of a broken limb. Furthermore, a dentist called as an expert dental witness cannot give an opinion as to whether or not the conduct of the defendant in a given case was contrary to accepted practice unless such witness is engaged in practice in the defendant's community. Practices and procedures vary in different localities. This variation is based on a number of factors, such as facilities for research, types of hospitals and experience. For example, there are differences in the use of tetanus antitoxin, the treatment of cardiac arrest, and the use of drugs, antibiotics, electro-shock and other procedures, to mention but a few.

PROFESSIONAL LIABILITY IN THE ARMED FORCES

A dentist in the armed forces is required to exercise the same degree of skill and judgement as his civilian counterpart. He can be sued by any member of the military for malpractice. Dental officers in the armed forces are therefore advised to maintain adequate professional liability insurance.

LIABILITY FOR EMPLOYEES

Dentists must not forget that they are liable for negligence on the part of a nurse or assistant whom they regularly employ.

Conversely, if the assistant is employed by someone other than the doctor or is acting independently, the doctor would not ordinarily be subject to liability unless he directs such assistant to perform an act which, of itself, would amount to negligence. To hold a dentist liable for the negligent act of persons who are not his employees and whom he is obliged to use in hospitals, for example, is an unwarranted extension of the doctrine of *respondeat superior* (let the master answer). Most courts have refused to extend this doctrine in such situations.

GROUNDS FOR MALPRACTICE

Common grounds for malpractice claims are:

1. Extractions (improper treatment), infection (failure to sterilize), retained roots, extraction of the wrong tooth (technical assault), fractured jaw, haemorrhage, and death following extraction;
2. Injury from instruments (disks, stones) especially when used with high-speed equipment;
3. Heat and chemical burns;
4. Foreign matter (broken needles, left-in drains, aspirated gold inlays, swallowed root canal reamers);
5. Breach of contract and poor service.

AVOIDING MALPRACTICE CLAIMS

Here are some useful rules every dentist should follow:

Avoid arguments with patients who complain of grievances, whether they be real or fancied. Keep on good personal terms with the patient.

Keep complete and accurate records. They are the most crucial evidence and protection in a malpractice suit.

Refrain from guaranteeing or promising a good result.

Follow approved methods of practice.

Be just as conscientious over postoperative care as in the main treatment.

When faced with an extraordinary situation, do not delay or evade the issue. If doubtful as to the next step, consult a fellow practitioner, preferably a specialist

in the particular type of treatment being rendered.

Do not conceal any important fact from the patient, even if the latter may never discover the facts by himself. But in doing so, avoid making any statement that could be construed as an admission of liability. Ontario courts will permit a patient to relate in evidence statements made to that patient by a dentist sued for malpractice. Such statements are treated as admissions which are excepted from the rule against hearsay evidence. Great care must be exercised to avoid an admission of liability not only because of its effects upon the merits of the case but because it may violate a condition of the policy of insurance providing indemnity to the dentist against the claim asserted.

When confronted by a serious question of law pertaining to dental practice, seek advice from the dentists' legal protective association (if one exists in your province) and/or insurance company.

Do not criticize another practitioner's work.

Avoid accidents in the handling of caustic medicaments, burs, disks, stones, and so forth.

Use radiographs judiciously. Do not embark on surgical procedures without pre-operative radiographs. Courts adjudge a doctor negligent who fails to use diagnostic radiographs when their use could have prevented an unfortunate after-occurrence or result.

Retain radiographs and other records for at least the period of the statute of limitations on contracts applicable in your province. A dentist who hastily releases or disposes of radiographs may lose his only defence to a lawsuit.

The use of proper facilities is as important as the use of a qualified anaesthetist when general anaesthetics are administered. A dentist may expect criticism if he conducts a serious operation under a general anaesthetic without the advantages of the facilities of a hospital.

Do not inform the patient or his representative that you possess malpractice insurance.

Familiarize yourself with manufacturers' instructions and warnings relative to any drugs or appliances used, the labelling and contents of bottles and contain-

ers, and the effects of any appliance used.

Reach a prior understanding with the patient about fees when costly treatment or actual payment may present a problem.

Avoid short-cuts in diagnosis.

Exhibit a personal interest in the patient's progress and comfort.

When a dentist begins to practise he should be acquainted with the various insurance coverages he will need. Among these should be malpractice insurance, supplemented by protection against the risks of office accidents. This latter coverage might include liability for bodily injury, property damage, and medical payments.

The most common failing of most practitioners is that they fail to take immediate advantage of their insurance by early notification to the insurer. Early notification would afford them immediate expert assistance in a field — malpractice — that I hope is otherwise foreign to the dentist.

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Gangrenous stomatitis: case report

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A four year old girl was unsuccessfully treated for gangrenous stomatitis at the Central Hospital, Kumasi, Ghana. Death from pneumonia occurred seven days after her admission to hospital. The clinical features, aetiology and treatment of this disease are described.

De l'hôpital Central de Kumasi, au Ghana, on rapporte l'échec du traitement d'une stomatite gangreneuse chez une fillette de quatre ans. Elle est morte de pneumonie sept jours après son hospitalisation. Le rapport décrit les symptômes cliniques, l'étiologie et le traitement de cette maladie.

is frequently fatal. Synonymous names are cancrum oris and noma.

CLINICAL FEATURES

Gangrenous stomatitis is a debilitating disease. It manifests itself as a small ulcer on the buccal mucosa which becomes gangrenous and spreads rapidly. The gingiva sloughs and exposes bone of the alveolar process. Teeth are subsequently infected and usually exfoliated. The cheek becomes necrotic as the gangrene affects deeper muscular tissue and large parts slough away resulting in a perforation. A distinctive foul odour is present. Drooling is excessive at first but later ceases as salivary glands become affected. Little or no pain occurs. However, severe itching may be present. Gangrene may affect the ear, eye, or nose, and may spread to the external genitalia. The patient may have diarrhoea and is rapidly debilitated. Pulmonary involvement usually ensues.

Gangrenous stomatitis is a rapidly spreading necrotizing lesion of the oral and facial tissues. It is a progressive disease causing marked destruction of tissue and

Predisposing factors play an important role since the disease occurs mostly in individuals weakened by malnutrition or by such diseases as measles, scarlet fever and malaria. It occurs chiefly in children. Sung and Sung suggest that it is not a disease in itself but rather the terminal signs and symptoms of a debilitating illness. Moreover, they note the similarity to ulcerative stomatitis: non-occurrence in edentulous mouths, marked odour, production of a pseudomembrane, and involvement of spirochaetes.¹

Death usually occurs in 7-10 days. The patient dies of aspiration broncho-pneumonia, septicaemia or exhaustion. If he survives, severe deformity results from massive loss of tissue.

AETIOLOGY

The aetiology of gangrenous stomatitis is unknown. General debilitation with consequent suppression of body defences must first be present. Then, superimposed is a fuso-spirochaetal infection which cannot be controlled. In their study of 30 cases in western China, Sung and Sung state that 25 were too poor to eat a normal diet and were therefore malnourished. They suggest a greater frequency in females, but are in doubt concerning seasonal occurrence of the disease.¹ Frequency is similar from infections in the mandible and those in the maxilla.² The disease is prevalent mostly in China, India and parts of Africa. However, a case was recently reported in New York City.³

TREATMENT AND PROGNOSIS

The systemic condition of the patient is first considered. Any underlying illness is treated. Large doses of antibiotics are indicated, penicillin being the drug of choice.² Transfusion is usually necessary. Dietary maintenance supplemented by vitamin therapy is of prime importance. The ulcerated area should be cleansed of all sloughed tissue. Irrigation with warm saline aids in physical cleans-



FIGURE 1 Gangrenous stomatitis in a four year old girl. Note the mental foramen in the sequestering mandible and the sloughing lingual gland. The photograph was taken on the fourth day following admission to hospital.

ing. Antiseptic solutions should be applied frequently.

The prognosis is poor. About 70 per cent of cases are fatal.¹ Those who survive suffer great deformity. If the patient lives for 10 days after the onset, the prognosis improves.¹

CASE REPORT

A four year old Negro female was admitted for treatment to the Central Hospital, Kumasi, Ghana. An accurate medical history was not obtainable. The mother claimed that illness had been present for only a few days. However, the child showed obvious signs of malnutrition with emaciated limbs and thin scaly skin. She had marked malaise and general exhaustion.

Oral examination revealed slight swell-

ing of the left cheek, complete sequestration of the mandible from the right mental region to the anterior border of the left ramus, and exfoliation of anterior and left posterior mandibular teeth. The maxilla and the right mandible were normal except for pallor of the gingiva. A foetid odour necessitated the removal of the patient from the main hospital ward.

On the day following her admission to hospital, an area of the left cheek approximately 1½ inches in diameter was demarcated by a lightening of skin colour. On the second day, perforation of the cheek occurred with subsequent sloughing of the skin, mucosa, sublingual gland and various muscle segments on the left side of the face. Although she had no pain, intense itching caused irritation and it was necessary to secure her hands at her sides to prevent self-damage (Figure 1).

Treatment consisted of parenteral administration of large doses of streptomycin and penicillin supported by anti-malarial

therapy. Feeding was facilitated with a gastric tube. The ulcerated area was cleansed of all sloughed tissue and Eusol antiseptic solution was applied frequently.

Death occurred on the seventh day due to pneumonia.

SUMMARY

The clinical features, aetiology and treatment of gangrenous stomatitis are described. A four year old Negro girl in Ghana was afflicted with the disease. Despite treatment, she succumbed within seven days of admission to hospital.

1. Sung, R. Y. and Sung, C. C. W. Some clinical observations concerning noma. *Am. J. Orthodont. & Oral Surg.* 33:Sec. Oral Surg. 284, 1947.
2. Thoma, K. H. *Oral pathology; a histological, roentgenological, and clinical study of the disease of the teeth, jaws, and mouth*, Ed. 4, St. Louis, Mosby, 1954.
3. Ruben, M. P. and Miller, Melvin. Noma: its association with nutritional deprivation and physical debilitation. Report of a case. *Oral Surg., Oral Med. & Oral Path.* 18:167, 1964.

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research annotations

Radiographic Cephalometric Study of Mandibular Morphology at Gonion and Its Relation to Tongue Posture in Cleft Palate and Normal Individuals

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This study endeavoured to elucidate the relation between the effect of maxillary orthodontic expansion and the posture of the tongue and mandible, and morphology of the gonial area in cleft lip and palate individuals. Specifically, the purpose was to investigate the hypothesis that:

(1) Maxillary collapse in cleft lip and palate individuals altered tongue posture and mandibular position.

(2) This alteration in mandibular posture then produced changes in morphology of the gonial area.

In addition, the influence of sex and sidedness of the cleft lesion was examined. Studies on mandibular symmetry were also conducted.

This study was cross-sectional in design and consisted of 124 complete unilateral cleft

lip and palate and 70 complete bilateral cleft lip and palate individuals, at six and 12 years of age. Subjects were separated into those whose palates were expanded orthodontically and those whose palates were collapsed. The control sample consisted of 80, six and 12 year old normal Class I (Angle) occlusions.

The statistical protocol consisted of the analysis of variance, students' 't' tests and correlation coefficients. The program used was in Fortram II symbolic language and it was run on the 7090 IBM Computer.

The study did not demonstrate that the form of the gonial area was altered as a result of maxillary expansion in unilateral and bilateral cleft cases. The unilateral cleft sample did demonstrate that an alteration in rest position occurred as a result of treatment and it is believed that this indicates a more superior tongue posture. The bilateral sample did not indicate that alteration in rest position had occurred. In general, no significant sex difference was found, and the side of the lesion in unilateral cases had no predominant influence upon its respective gonial area. There were no significant findings with respect to left-right gonial area symmetry.

1963 Survey of Dental Practice

Bureau of Economic Research

Enquête de 1963 sur la profession dentaire

Bureau des recherches économiques

9. Length of dental appointments

When dentists were asked, "What was the average length of your appointments in 1963?" most (57 per cent) of them answered 30 minutes. Only 3 per cent of the respondents averaged appointments that were shorter. Twenty-nine per cent had 45 minute appointments, 9 per cent appointments of one hour's duration and 1 per cent said their appointments usually lasted more than one hour.

The percentage of dentists reporting 30 minute appointments was only slightly higher in this survey than in 1953. The figures from the earlier surveys are not strictly comparable, however, as there was not previously a 'less than 30 minute' category for the length of appointments.

The percentage of dentists having 45 minute and one hour appointments has decreased from 45 per cent in 1953 to 41 per cent in 1958 to 38 in the current survey. The percentage of dentists with longer than one hour appointments has remained unchanged.

More than 50 per cent of the dentists in every province except British Columbia had 30 minute appointments. The appoint-

9. Durée des séances de traitement

A la question "Quelle a été la durée moyenne de vos séances de traitement en 1963?" la plupart des dentistes (52 pour cent) ont répondu: 30 minutes. Seulement 3 pour cent des dentistes ont des séances plus courtes. Vingt-neuf pour cent ont des séances de 45 minutes, 9 pour cent ont des séances d'une heure, et 1 pour cent des séances qui durent habituellement plus d'une heure.

Le pourcentage des dentistes qui déclarent dans la présente enquête avoir des séances de 30 minutes n'est que légèrement supérieur à celui de l'enquête de 1953. On ne peut cependant pas établir de comparaison stricte avec les chiffres des enquêtes précédentes, car elles ne comportaient pas la catégorie de durée de séances 'de moins de 30 minutes.'

Le pourcentage des dentistes qui ont des séances de 45 minutes et d'une heure est passé de 45 pour cent en 1953 à 41 pour cent en 1958 et à 38 pour cent dans la présente enquête. Le pourcentage des dentistes dont les séances dépassent une heure n'a pas changé.

Plus de 50 pour cent des dentistes de

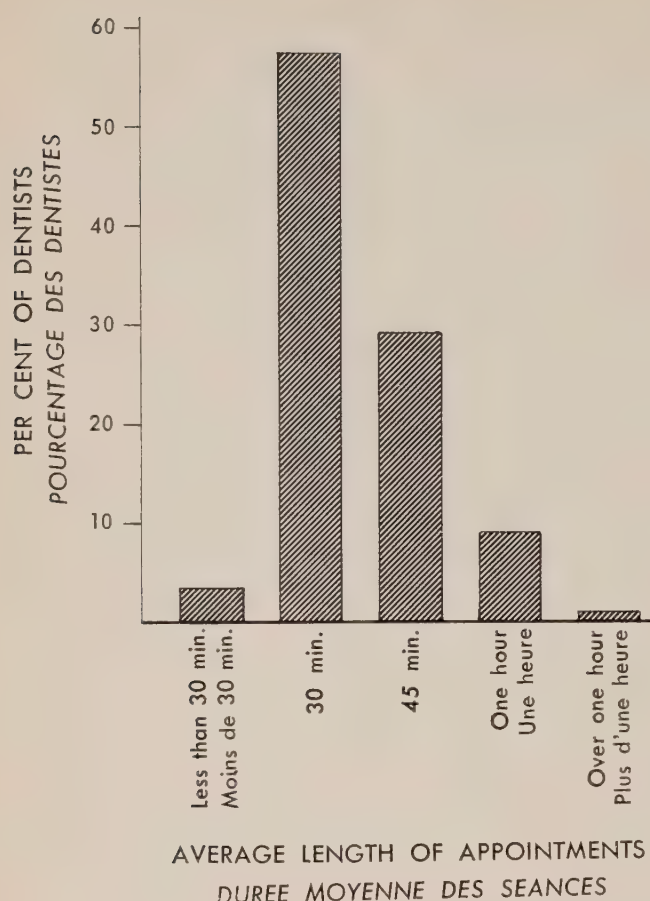


FIGURE 1 Fifty-seven per cent of practising dentists have 30 minute appointments • Cinquante-sept pour cent des dentistes ont des séances de 30 minutes.

toutes les provinces sauf la Colombie britannique ont des séances de 30 minutes. Chez 54 pour cent des dentistes de Colombie britannique la séance moyenne dépasse 30 minutes. Seulement 17 pour cent des dentistes de Terre-Neuve ont des séances qui durent plus de 30 minutes en moyenne.

Les dentistes qui habitent des villes de moins de 5,000 habitants ont des séances plus longues que ceux des villes plus importantes. Les deux-tiers des dentistes des localités inférieures à 1,000 habitants et environ la moitié des dentistes des villes comprises entre 2,500 et 5,000 habitants ont des séances moyennes de 45 minutes ou plus. Les dentistes des très grandes villes du Canada tendent à avoir des séances plus longues que ceux des villes comprises entre 5,000 et 500,000 habitants.

La proportion de dentistes dont les séances dépassent 30 minutes est plus forte dans le groupe d'âge de moins de 25 ans que dans tous les autres groupes d'âge. Soixante-dix-neuf pour cent de ces jeunes dentistes ont des séances moyennes de 45 minutes ou plus. Les pourcentages des dentistes dont les séances dépassent 30 minutes sont assez élevés dans les groupes d'âge de 25 à 35 ans et de 65 à 75 ans. Les dentistes de ce dernier groupe comptent moins de patients et moins de séances que ceux des autres groupes. Arrivés à un âge avancé, ils préfèrent peut-être travailler à un rythme plus lent.

La majorité des dentistes qui pratiquent depuis moins de quatre ans ou plus de 40 ans a des séances de plus de 30 minutes. Au cours de leurs deux ou trois premières années de pratique, où les dentistes emploient moins d'assistantes à plein temps, les jeunes diplômés peuvent trouver plus difficile d'organiser leur travail avec des séances de 30 minutes que les dentistes qui exercent depuis plus longtemps et qui utilisent plus souvent les services d'assistantes.

ments of 54 per cent of the BC dentists averaged more than 30 minutes. Only 17 per cent of Newfoundland's dentists had appointments which lasted more than 30 minutes on the average.

Dentists living in towns of under 5,000 people had longer appointments than dentists living in larger cities. Two-thirds of all dentists in communities of less than 1,000 inhabitants and about one-half of the dentists in towns with populations of 2,500 to 5,000 had average appointments of 45 minutes or longer. Dentists in Canada's largest cities tended to have longer appointments than dentists in cities of between 5,000 and 500,000 people.

A higher proportion of dentists in the under 25 years age group had appointments lasting more than 30 minutes than all other age groups of dentists. Seventy-nine per cent of these young dentists had appointments that averaged 45 minutes or longer. Comparatively high percentages of dentists between 25 and 35 years and of dentists between 65 and 75 years also had appointments of over 30 minutes. The latter age group had less patients and fewer appointments than dentists of other

ages. Perhaps, with advancing years, they preferred to work at a more leisurely pace.

The majority of dentists who had been in practice less than four years or over 40 years had appointments lasting longer than 30 minutes. There is nothing to indicate that there is a trend to longer appointments. In their first two or three years of practice, when fewer dentists employ full-time dental assistants, these recent graduates may have found it more difficult to organize their practices to a 30 minute appointment schedule than did dentists who had been in practice longer and had more chairside assistance.

Ninety-five per cent of the oral surgeons and 72 per cent of the orthodontists said their average appointments lasted 30 or less minutes. While only 3 per cent of the general practitioners had appointments of under 30 minutes, 14 per cent of the oral surgeons and 10 per cent of the orthodontists had such appointments. A majority of the periodontists had appointments averaging 45 minutes, while 13 per cent had one hour appointments.

10. Average dental fees

The Survey of Dental Practice questionnaire asked dentists to list the average fee charged during 1963 for six specific dental services. Dental prophylaxis was described as 'supragingival scaling and polishing' and the mean average of the fees reported by all dentists answering the question was \$6. The same fee, \$6, was the average charged for two surface amalgam restorations and for silicate or acrylic fillings. A fee of \$5 was charged for a single extraction which was 'uncomplicated' and performed with local anaesthetic. The average fee for a two surface gold inlay was \$28; for one complete upper denture, it was \$83.

Since the first Survey of Dental Practice was conducted in 1953, national average fees for two surface amalgam and silicate or acrylic fillings have risen from \$4 to \$6, an increase of 50 per cent. The

Quatre-vingt-dix-neuf pour cent des chirurgiens buccaux et 72 pour cent des orthodontistes déclarent que leurs séances moyennes durent 30 minutes ou moins. Seulement 3 pour cent des omnipraticiens ont des séances inférieures à 30 minutes alors que le chiffre est de 14 pour cent chez les chirurgiens buccaux et de 10 pour cent chez les orthodontistes. La majorité des périodontistes a des séances moyennes de 45 minutes, et 13 pour cent ont des séances d'une heure.

10. Honoraires moyens

Dans le questionnaire de l'Enquête sur la profession dentaire, les dentistes devaient mentionner les honoraires moyens demandés en 1963 pour six traitements dentaires particuliers. La prophylaxie dentaire y figurait sous le nom de détartrage supragingival et polissage coronaire. Les dentistes qui ont répondu à cette question demandaient en moyenne des honoraires de \$6. Les honoraires moyens étaient aussi de \$6 pour l'obturation d'une carie proximale avec un amalgame et pour une obturation au silicate ou à la résine. Les honoraires moyens étaient de \$5 pour l'extraction d'une dent sans complications sous anesthésie locale, de \$28 pour l'obturation d'une carie proximale avec une incrustation en or, et de \$83 pour une prothèse supérieure complète.

Depuis la première Enquête sur la profession dentaire, en 1953, les honoraires moyens de l'ensemble du pays pour les obturations de caries proximales avec un amalgame ou avec du silicate et de la résine sont passés de \$4 à \$6, soit une augmentation de 50 pour cent. L'augmentation des honoraires moyens pour une prothèse complète du haut est plus faible: 32 pour cent, ce qui élève de \$20 le prix des prothèses. Les honoraires pour l'obturation d'une carie proximale avec une incrustation en or représentent le plus fort pourcentage d'augmentation. Ils ont augmenté de 87 pour cent entre 1953 et 1963.

percentage increase in the average fee for one complete denture was less. The 32 per cent increase in the denture fee raised the price of dentures \$20. The largest proportionate increase was experienced in fees for two surface gold inlays. These fees were 87 per cent higher in 1963 than in 1953.

HONORAIRES MOYENS PAR PROVINCE

Les honoraires moyens de la Colombie-britannique viennent au premier rang pour 5 des 6 traitements examinés, et au deuxième rang pour la prothèse supérieure complète (\$77). Pour les prothèses, les honoraires moyens s'échelonnent entre

TABLE 1 Average fees charged for specific services • Honoraires moyens pour quelques traitements particuliers.

Service Traitement	Region					
	Atlantic Maritime	Québec	Ontario	Prairie Provinces de l'ouest	B.C. • C.-B.	Canada
	\$	\$	\$	\$	\$	\$
Prophylaxis Prophylaxie	4	6	6	6	7	6
Amalgam filling Obturation d'amalgame	5	6	6	6	7	6
Silicate filling Obturation de silicate	5	6	6	6	6	6
Extraction	4	4	5	5	5	5
Gold inlay Incrustation d'or	22	29	29	25	31	28
Upper denture Prothèse supérieure	67	76	92	74	77	83

AVERAGE FEES IN THE PROVINCES

British Columbia dentists had the highest average fees in five of the six services surveyed and the second highest average fee for a complete upper denture (\$77). Average fees for dentures ranged from \$92 in Ontario to \$65 in Newfoundland. The range of fees for two surface gold inlays was from \$31 to \$19, the low fee being the Prince Edward Island average. Average fees for silicate or acrylic fillings were between \$5 and \$6 in all provinces while extractions were either \$4 or \$5 in all provinces except Newfoundland where the average was \$3. Amalgam res-

\$92 en Ontario et \$65 à Terre-Neuve; pour l'obturation d'une carie proximale avec une incrustation en or ils s'échelonnent entre \$31 et \$19, ce dernier chiffre étant celui de l'Ile-du-Prince Edouard; pour les obturations de silicate ou de résine, entre \$5 et \$6 dans toutes les provinces; pour les extractions, les honoraires sont de \$4 ou \$5 dans toutes les provinces, sauf à Terre-Neuve où la moyenne est de \$3. Pour une obturation d'amalgame, les honoraires moyens s'échelonnent entre \$7 (en Colombie-britannique et au Manitoba) et \$5 (dans les trois provinces maritimes); pour les prophylaxies, entre \$4 dans l'Ile-du-Prince Edouard et en Nouvelle-Ecosse

turations had average fees of from \$7 (in British Columbia and Manitoba) to \$5 (in the three Maritime provinces). Fees for prophylaxes ranged from \$4 in Prince Edward Island and Nova Scotia to British Columbia's \$7.

Since 1953, average fees for a two surface amalgam restoration have risen 50 per cent in Newfoundland, Quebec, Ontario and Saskatchewan, 40 per cent in Manitoba, 25 per cent in Prince Edward Island, Nova Scotia and New Brunswick, 20 per cent in Alberta and 17 per cent in British Columbia. Rises in fees for silicate or acrylic fillings were the same except that British Columbia's increase was 20 per cent while there was no increase in the average fee charged in Manitoba. Average fees for a two surface gold inlay rose the most in New Brunswick (from \$12 to \$24) and least in Prince Edward Island where the increase was 46 per cent. Increases in the other provinces were between these two extremes. The smallest rises in fees for one complete denture were reported by Prince Edward Island (2 per cent) and the four western provinces (8 to 14 per cent). The average Ontario fee rose 46 per cent.

FEES HIGHER IN LARGER CITIES

Generally speaking, the larger the city in which the dentist practised, the higher were his fees. And, whereas net incomes were not at their peak in the largest cities (those over half a million inhabitants), average fees reached their highest in these cities. Average fees for complete dentures were under \$75 in cities with less than 15,000 people. In cities of over 500,000, the average fee was \$96. Gold inlays for which the dentist in communities of under 1,000 charged \$19 had an average fee of \$32 in the largest cities. Prophylaxes, amalgam and silicate fillings and extractions all cost one or two dollars less in small communities than in large cities.

OLDER DENTISTS CHARGE LOWER FEES

Why do older dentists earn less money? One reason is that their fees are lower.

et \$7 en Colombie-britannique.

Depuis 1953, les honoraires moyens pour l'obturation d'une carie proximale avec un amalgame ont augmenté de 50 pour cent à Terre-Neuve, dans le Québec, l'Ontario et la Saskatchewan, de 40 pour cent au Manitoba, de 25 pour cent dans l'Ile-du-Prince Edouard, la Nouvelle-Ecosse et le Nouveau-Brunswick, de 20 pour cent en Alberta et de 17 pour cent en Colombie-britannique. Les augmentations ont été les mêmes pour les obturations de silicate ou de résine, sauf en Colombie-britannique où la hausse a été de 20 pour cent et au Manitoba où l'honoraire moyen n'a pas augmenté. Pour l'obturation d'une carie proximale avec une incrustation en or, la hausse des honoraires moyens a été la plus forte au Nouveau-Brunswick (de \$12 à \$24) et la plus faible dans l'Ile-du-Prince Edouard, avec 46 pour cent. Les augmentations des autres provinces s'inscrivent entre ces deux extrêmes. Pour une prothèse supérieure complète, les augmentations les plus faibles sont celles de l'Ile-du-Prince Edouard (2 pour cent) et des quatre provinces de l'Ouest (8 à 14 pour cent). En Ontario, l'augmentation a été de 46 pour cent.

LES HONORAIRES SONT PLUS ÉLEVÉS DANS LES GRANDES VILLES

En règle générale, plus la ville du dentiste est importante, plus ses honoraires sont élevés. Bien que les revenus nets ne soient pas les plus hauts dans les très grandes villes (au-delà du demi-million d'habitants), les honoraires moyens y sont les plus élevés. Pour les prothèses supérieures complètes, les honoraires moyens sont inférieurs à \$75 dans les villes de moins de 15,000 habitants et ils s'élèvent à \$96 dans les villes de plus de 500,000 habitants. Pour les incrustations d'or le dentiste demande \$19 dans les localités de moins de 1,000 habitants et \$32 dans les très grandes villes. Les prophylaxies, les obturations d'amalgame ou de silicate et les extractions coûtent tous un ou deux dollars de moins dans les petites localités que dans les grandes villes.

The lowest average fees for each of the dental services surveyed were charged by the oldest age groups of dentists. On the other hand, dentists under 25 years of age charged fees that were as high as or higher than the averages for dentists of all other age cohorts. Their fees for the six services surveyed were from 20 to 68 per cent above the average fees charged by the oldest dentists.

Dentists who had been in practice less than four years had above average fees in three services (two surface amalgams, gold inlays and upper dentures) and average fees in the other three services. Perhaps, it is comparatively easy for recent graduates to establish their fees at what is considered to be a reasonable level while it is more difficult for dentists with established practices to raise their fees to this level.

FEES VARY ACCORDING TO METHOD OF PRACTISING

An analysis of average fees by method of organizing the dental practice revealed that dentists in partnerships charged the lowest fees and dentists in cost-sharing arrangements had the highest fees. There does not seem to be an explanation for this.

It might be expected that fees would be lower the more auxiliaries a dentist employed. The dentist would then be substituting the less expensive services of his employees for his own more valuable time. Actually, the opposite seems to be the case. For each service surveyed, dentists with no employees charged the lowest fees while dentists with two or more full-time employees and one part-time employee reported the highest average fees.

SHOULD BUSIEST DENTISTS RAISE THEIR FEES?

Studying the average fees charged by dentists who have been divided into four categories of 'busyness' leads to some interesting speculations about the economics of dental practice. The four groups of dentists were those who:

LES HONORAIRES DES DENTISTES ÂGÉS SONT PLUS BAS

Une des raisons pour lesquelles les dentistes âgés gagnent moins d'argent est que leurs honoraires sont plus bas. Les honoraires moyens les plus bas pour chacun des traitements dentaires examinés correspondent aux derniers groupes d'âge. D'autre part, les honoraires des dentistes de moins de 25 ans sont aussi hauts, ou plus hauts, que ceux des dentistes de tous les autres groupes d'âge. Leurs honoraires pour les six traitements examinés dépassent de 20 à 68 pour cent les honoraires moyens des dentistes les plus âgés.

Les dentistes qui pratiquent depuis moins de quatre ans ont des honoraires supérieurs à la moyenne pour trois traitements (obturation d'une carie proximale avec un amalgame, incrustations d'or et prothèse supérieure) et des honoraires égaux à la moyenne pour les trois autres traitements. Peut-être est-il assez facile aux nouveaux diplômés de fixer leurs honoraires à un niveau tenu pour raisonnable, alors que les dentistes dont la clientèle est établie trouvent plus difficile de majorer les leurs à ce niveau.

LES HONORAIRES VARIENT SUIVANT L'ORGANISATION DU CABINET

Si on examine les honoraires moyens suivant le mode d'organisation du cabinet, il apparaît que les dentistes en association demandent les honoraires les plus bas, et les dentistes qui partagent leurs frais, les honoraires les plus hauts. Il ne semble pas que ce fait puisse s'expliquer.

On pourrait s'attendre à ce que les honoraires diminuent quand le nombre d'auxiliaires augmente. Le dentiste substituerait alors les services de ses employés à son propre temps qui coûte plus cher. C'est l'inverse qui semble se produire en réalité. Pour chacun des traitements examinés, les dentistes sans employé demandent les honoraires les plus bas alors que les dentistes qui ont deux employés à temps complet ou plus, et un employé à temps partiel demandent les honoraires les plus élevés.

1. Were too busy to treat all people requesting appointments;

2. Saw all people requesting appointments but were too rushed or overworked;

3. Provided services for all people requesting them and had enough but not too many patients;

4. Would like to have had more patients.

The average fees charged by the third group — those dentists who had enough but not too many patients — were as high as or higher than the average fees charged by the other groups. Fees for the first, second and fourth groups — those dentists who were either too busy or not busy enough — were about the same except that the average fee charged by the least busy dentists for a gold inlay was slightly above the average fee charged by the busier dentists (\$29 compared to \$27 and \$28).

The group of dentists who reported that they had enough but not too many patients were in equilibrium. At the fees they charged, the demand for their services equalled the supply of services they wished to provide. Theoretically, if dentists in this group lowered their fees, the demand for their services would increase. To meet the immediate demand for their services, they would be required to work under more pressure and/or for longer hours than they believe is desirable. On the other hand, depending upon the elasticity of demand for dental services, an increase in their fees could cause the demand for their services to decline to a point where gross income would be less than under equilibrium conditions.

Dentists who reported that they were too busy charged lower fees but grossed more per hour than the group of dentists just described. This indicates that the busier dentists were by choice or by necessity more productive than the other dentists. The demand for their services exceeded the supply of services they either did or wanted to provide. If these groups increased their fees, the demand for their services might be less but their total revenue could be greater than under existing fees. Marginal patients might be induced to seek dental services from other dentists — in particular from the group

LES DENTISTES LES PLUS OCCUPÉS DOIVENT-ILS HAUSSER LEURS HONORAIRES?

Si l'on étudie les honoraires moyens des dentistes, après avoir classé ceux-ci en quatre catégories "d'affairement", on arrive à des observations intéressantes sur l'économie du cabinet dentaire. Les quatre catégories de dentistes sont:

1. Ceux qui sont trop occupés pour traiter toutes les personnes qui sollicitent un rendez-vous.

2. Ceux qui voient toutes les personnes sollicitant un rendez-vous mais sont trop bousculés ou surmenés.

3. Ceux qui traitent toutes les personnes qui s'adressent à eux et ont assez de patients, sans en avoir trop.

4. Ceux qui aimeraient recevoir plus de patients.

Les honoraires moyens du groupe trois — les dentistes qui ont assez de patients mais pas trop — sont aussi élevés ou plus élevés que ceux des autres groupes. Les honoraires des groupes un, deux et quatre — les dentistes qui sont trop occupés ou pas assez — sont à peu près les mêmes, sauf que les dentistes les moins occupés demandent pour une incrustation d'or des honoraires légèrement plus hauts que ceux des dentistes qui sont plus occupés (\$29 contre \$27 et \$28).

Il y a équilibre pour le groupe de dentistes qui ont assez de patients mais pas trop. Au niveau de leurs honoraires, la demande de services est égale à l'offre de services qu'ils veulent fournir. En théorie, si les dentistes de ce groupe abaissaient leurs honoraires, la demande de services augmenterait. Pour faire face à cette demande accrue, ils devraient travailler plus fort et/ou plus longtemps qu'ils ne le trouvent souhaitable. D'autre part, selon la souplesse de la demande de services dentaires, une augmentation de leurs honoraires pourrait réduire la demande de services au point où le revenu brut serait plus faible que lorsque l'offre et la demande sont en équilibre.

Les dentistes qui déclarent être trop occupés demandent des honoraires plus bas que ceux du groupe précédent mais leur revenu horaire brut est plus haut. Ceci montre que les dentistes les plus occupés ont, de bon ou de mauvais gré, un rendement supérieur aux autres.

of dentists reporting that they had too few patients.

According to economic theory, in the short run it would be reasonable for those dentists who find it difficult or impossible to cope with their patient load to raise their fees. In the longer run, however, it may be both economically and socially more desirable for these dentists to hire additional employees so that they can increase the supply of the services they render.

DENTISTS WHO MAKE THE MOST CHARGE THE MOST

When 1963 average dental fees are distributed according to net income from practice, it is evident that, in general, the higher the dentist's income, the higher his fees. This tendency was most noticeable in fees for gold inlays and complete dentures. For example, dentists earning net incomes of \$5,000 to \$10,000 charged on the average \$25 for a two surface gold inlay and \$75 for a complete upper denture. Dentists earning between \$25,000 and \$30,000 charged \$32 for the inlay and \$93 for the denture.

There are several reasons why some dentists earn higher net incomes than other dentists. Some dentists operate more efficient offices and therefore retain a higher percentage of their total receipts from practice. Some dentists render more services than the average dentist either by being more productive (that is providing more services per hour worked) or by working longer hours. Some dentists may also have higher net incomes because they charge higher fees. In most cases, it is probably a combination of these reasons that explains the comparatively high earnings of some dentists.

This report is condensed from the *Survey of Dental Practice, 1963* published by the Bureau of Economic Research.

Ce communiqué est un résumé de l'Enquête de 1963 sur la profession dentaire publiée par le bureau des recherches économiques.

La demande de services dépasse leurs possibilités ou leur désir de production. Si ces groupes relevaient leurs honoraires, la demande de services pourrait diminuer mais leur revenu total serait peut-être plus élevé qu'avec les honoraires actuels. Les patients en excédent se tourneraient peut-être vers d'autres dentistes — en particulier vers ceux qui déclarent qu'ils en ont trop peu.

D'après la théorie économique, il serait raisonnable à court terme que les dentistes qui trouvent difficile ou impossible de s'occuper de tous leurs patients haussent leurs honoraires. Mais à long terme, il vaut peut-être mieux, pour des raisons économiques autant que sociales, que ces dentistes engagent des employés supplémentaires et augmentent ainsi les services qu'ils fournissent.

LES DENTISTES QUI GAGNENT PLUS DEMANDENT PLUS

Quand on compare les honoraires moyens de 1963 aux revenus nets des dentistes il apparaît en général que plus le revenu du dentiste est haut, plus ses honoraires sont élevés. Ceci se remarque particulièrement à propos des honoraires pour les incrustations d'or et les prothèses complètes. Par exemple, les dentistes dont le revenu net se situe entre \$5,000 et \$10,000 demandent en moyenne \$25 pour l'obturation d'une carie proximale avec une incrustation en or et \$75 pour une prothèse supérieure complète. Les dentistes qui gagnent entre \$25,000 et \$30,000 demandent \$32 pour l'incrustation et \$93 pour la prothèse.

Les différences de revenu net entre dentistes s'expliquent de plusieurs façons. Certains exploitent des cabinets plus productifs et conservent par conséquent un meilleur pourcentage des recettes brutes. D'autres fournissent plus de services que le dentiste moyen soit parce qu'ils sont plus diligents (ils fournissent plus de services par heure de travail) soit parce qu'ils travaillent plus longtemps. D'autres encore ont un revenu net plus fort parce que leurs honoraires sont plus élevés. Le plus souvent les fortes recettes de certains dentistes sont dus à une combinaison de ces facteurs.

**Pageantry Marks Historic
Convocation of
Royal College
of Dentists**

**Une imposante cérémonie
marque la première
assemblée du Collège royal
des chirurgiens-dentistes**

More than 300 dignitaries, guests and spectators witnessed the ceremonial conferring of fellowships at the inaugural convocation of the Royal College of Dentists of Canada in Toronto May 14.

Bright sunshine, cloudless blue skies, the delicate green tracery of early May foliage and a profusion of spring flowers formed a vivid background to the pageantry of the ceremony within the University of Toronto's Convocation Hall.

Ontario's lieutenant-governor, the Honourable W. Earl Rowe, addressed royal greetings to the College and conferred initial fellowships upon officers and members of the council of the College. Mr. Rowe then conferred 77 charter fellowships and two honorary fellowships. Selected as charter fellows were specialists "... of distinction who are graduates of at least 10 years' standing of a recognized university ... and who ... have given evidence of high ability in one of the branches of dentistry recognized as specialties by the [Canadian Dental] Association."

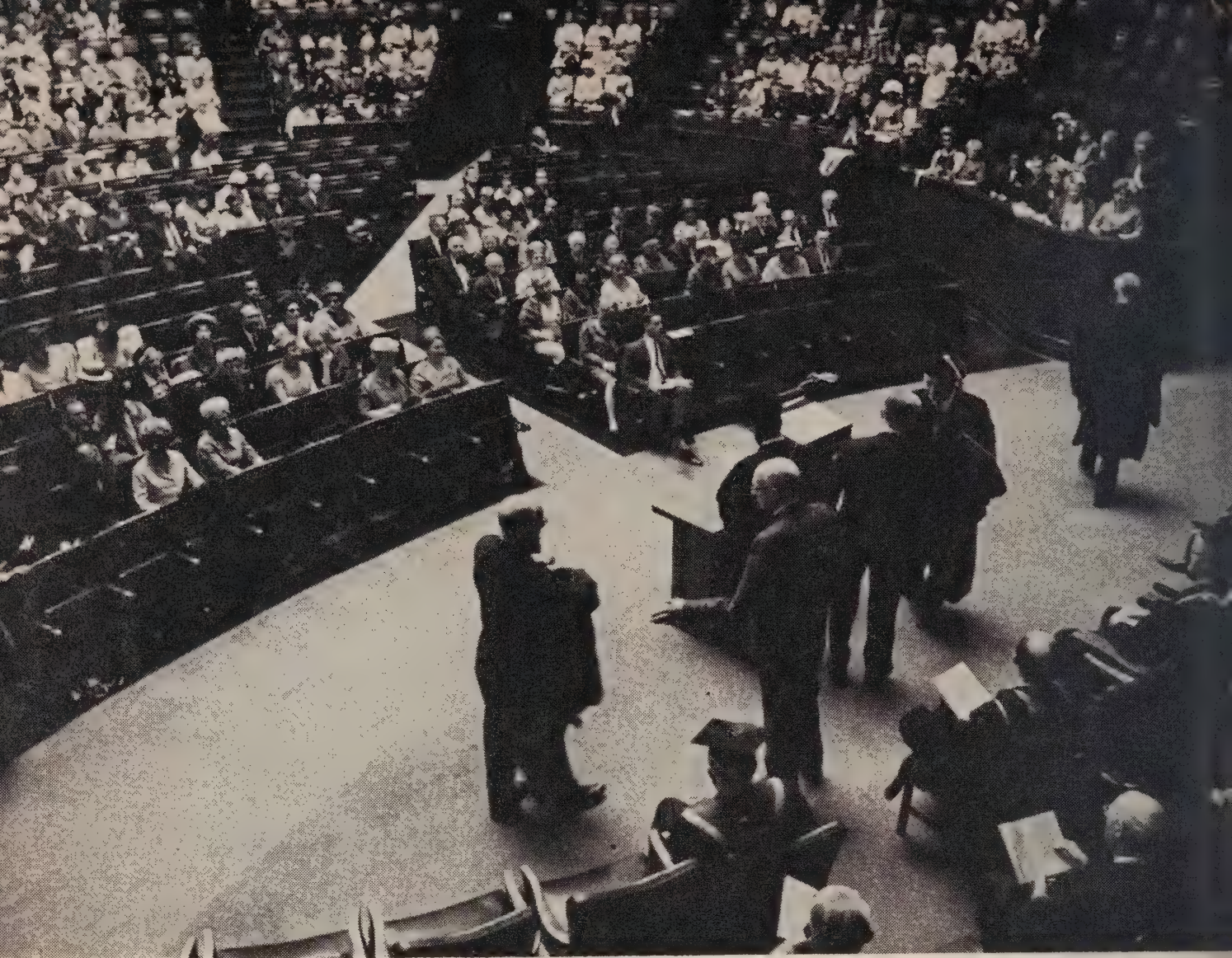
Recipients of two honorary fellowships were T. G. Ward of the Royal College of Surgeons of England and M. A. Rogers, Montreal. As chairman of the CDA Specialists and Specialization Committee Dr.

La collation des titres de Fellow du Collège royal des chirurgiens-dentistes du Canada s'est déroulée en présence de plus de 300 dignitaires, invités et spectateurs, au cours de l'assemblée inaugurale du Collège, tenue le 14 mai à Toronto.

Un soleil brillant, un ciel sans nuage, le vert délicat des premières feuilles de mai et les fleurs printannières abondantes formaient une éclatante toile de fond pour la cérémonie qui s'est déroulée au Convocation Hall de l'Université de Toronto.

Le lieutenant-gouverneur de l'Ontario, l'Honorable W. Earl Rowe a prononcé un message royal de félicitations pour le Collège et il a conféré les premiers titres de "fellow" aux dirigeants et aux membres du Conseil du Collège. Il a ensuite conféré 77 titres de membre fondateur et deux titres de membre honoraire. Les membres fondateurs sont des spécialistes distingués, diplômés d'une université reconnue depuis au moins 10 ans et qui ont fait la preuve de leur haute compétence dans une des branches de la dentisterie reconnues comme spécialités par l'Association dentaire canadienne.

Les titres honorifiques ont été conférés au docteur T. G. Ward du Royal College of Surgeons of England et au docteur



The University of Toronto's Convocation Hall was the scene of the first convocation of the Royal College of Dentists of Canada May 14.

La première réunion du Collège royal des chirurgiens-dentistes du Canada s'est déroulée le 14 mai au Convocation Hall de l'Université de Toronto.

Rogers was intimately involved in the preparations that culminated in the formation of the Royal College of Dentists of Canada.

Reciprocity in the recognition of specialty training served as the main theme for Mr. Ward's convocation address.

"I would like to see the requirements for fellowship in the Royal College of Dentists of Canada recognized on a

M. A. Rogers, de Montréal. Président du Comité des spécialistes et de la spécialisation de l'ADC, le docteur Rogers a participé personnellement aux travaux qui ont donné lieu à la création du Collège royal des chirurgiens-dentistes du Canada.

Dans son discours à l'assemblée, le docteur Ward a abordé le thème de la reconnaissance réciproque des études de spécialisation. Il aimerait, a-t-il dit, que les qualifications requises pour devenir membre du Collège royal des chirurgiens-dentistes du Canada soient reconnues réciproquement, de sorte que les jeunes britanniques et les jeunes canadiens qui se préparent à devenir spécialistes voient leurs qualifications reconnues de part et d'autre de l'Atlantique.

Il a expliqué que sans aucun doute nous nous dirigeons actuellement vers un marché commun mondial en médecine... et que le premier pas dans cette voie consiste à établir une base commune pour les



M. A. Rogers

**Charter Fellows of the
Royal College of Dentists of Canada**

**Membres fondateurs du
College royal des chirurgiens-dentistes du Canada**

J. E. Abra, Winnipeg	D. Kepron, Montreal
D. L. Anderson, Hamilton	K. M. Kerr, Halifax
A. A. Antoni, Grand Bahama Island	H. E. Leslie, Toronto
C. Asselin, Montreal	W. J. Linghorne, Toronto
M. J. Averback, Winnipeg	E. W. P. Luxford, Calgary
C. Baril, Montreal	S. A. MacGregor, Toronto
L. Bernier, Quebec City	J. J. McCarthy, Montreal
J. L. Bertrand, Dorval, P. Que.	J. McCutcheon, Montreal
J. J. J. Bisailon, Montreal	W. G. McIntosh, Toronto
B. E. Brownlee, Winnipeg	J. G. Mitchell, Regina
C. R. Castaldi, Winnipeg	D. S. Moore, Hamilton
P. S. Christie, Halifax	C. H. Moses, Toronto
W. D. Clark, Stoney Creek, Ont.	W. O. Mulligan, Saint John, NB
J. F. Cleall, Winnipeg	M. Nacht, Vancouver
R. E. Cline, North Vancouver	J. W. Neilson, Winnipeg
G. P. Copeland, Sudbury	G. Nikiforuk, Los Angeles, USA
J. P. Coupland, Ottawa	H. T. Oliver, Montreal
C. E. Craig, Vancouver	G. J. Parfitt, Vancouver
J. T. Crouch, Toronto	J. Passalis, Winnipeg
M. R. Culbert, Toronto	G. Perreault, Montreal
G. de Montigny, Montreal	R. Rapp, Pittsburgh, USA
E. Downton, Toronto	A. Raymond, Montreal
V. A. Dubé, Montreal	R. L. Scott, Brantford, Ont.
W. H. Feasby, Winnipeg	F. A. Smith, Vancouver
A. D. Fee, Edmonton	P. T. Smylski, Toronto
G. V. Fisk, Toronto	C. M. Solomon, Montreal
R. O. Fisk, Toronto	J. E. Speck, Toronto
G. Franklin, Montreal	J. D. Stewart, Montreal
S. D. Fraser, Edmonton	G. C. Swann, Calgary
Paul Geoffrion, Montreal	A. E. Swanson, Vancouver
J. W. Gerrie, Montreal	W. Swiston, Westmount, P. Que.
P. J. Gitnick, Montreal	R. L. Twible, Toronto
H. W. Hart, Winnipeg	T. B. Van de Mark, Toronto
R. F. Harvey, Westmount, P. Que.	W. F. Walford, Montreal
R. D. Haryett, Edmonton	K. M. Walley, Vancouver
A. M. Hayes, Vancouver	D. C. Way, London, Ont.
A. E. Hoffman, Halifax	C. H. M. Williams, Toronto
M. C. Johnston, Toronto	A. W. S. Wood, Toronto
	W. G. Woods, Toronto

reciprocal basis so that young British and Canadian specialty trainees can be interchanged," said Mr. Ward.

études et les examens dentaires.

Le Collège été constitué par Acte du parlement le 18 mars 1965. Les membres

He elaborated by saying: "We are undoubtedly working toward a world common market in medicine . . . and an important first step in this direction is the achievement of a common basis of training and examination in dentistry."

The College was incorporated by Act of Parliament on March 18, 1965. Members of its first council, elected last September 16-17, are: G. V. Fisk, Toronto; Paul Geoffrion, Montreal; A. W. S. Wood, Toronto; R. L. Scott, Brantford, Ontario; J. W. Neilson, Winnipeg; C. H. Moses, Toronto; and W. D. Clark, Stoney Creek, Ontario. The president is F. A. Smith of Vancouver. C. H. M. Williams, Toronto, is vice-president. A. A. Antoni, Grand Bahama Island, is registrar and J. E. Speck, Toronto, is secretary-treasurer.

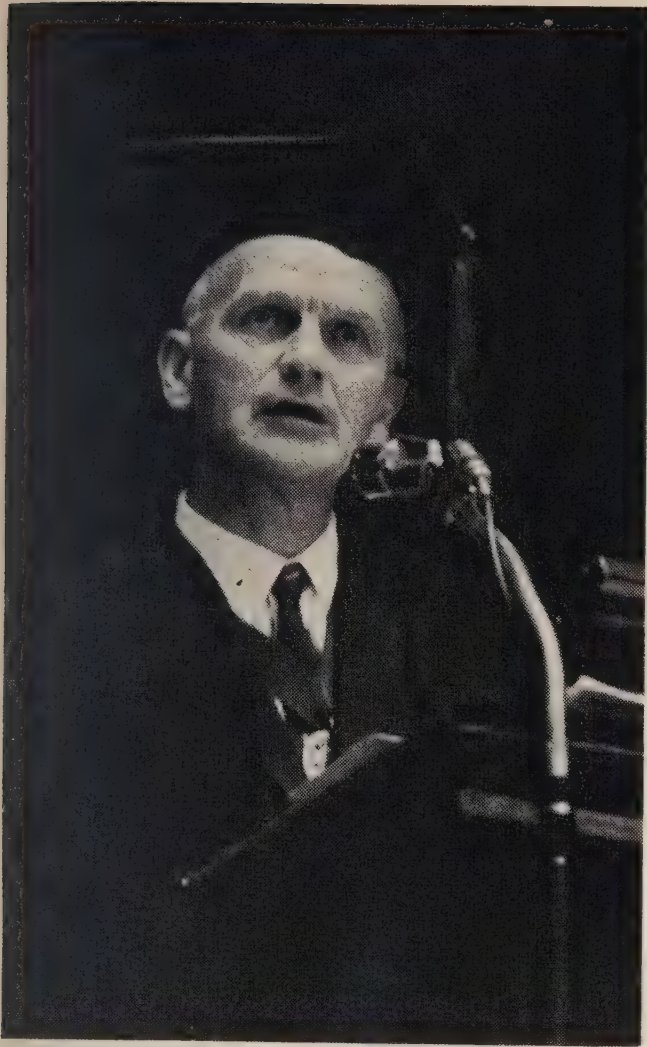
de son premier Conseil, élus les 16 et 17 septembre sont les docteurs G. V. Fisk de Toronto; Paul Geoffrion de Montréal; A. W. S. Wood de Toronto; R. L. Scott de Brantford en Ontario; J. W. Neilson de Winnipeg; C. H. Moses de Toronto et W. D. Clark de Stoney Creek en Ontario. Le président est le docteur F. A. Smith de Vancouver; le vice-président, le docteur C. H. M. Williams de Toronto; le registraire est le docteur A. A. Antoni de Grand Bahama Island et le secrétaire-trésorier est le docteur J. E. Speck de Toronto.

Le Collège a pour but de favoriser une spécialisation de haute valeur dans la profession dentaire, de prononcer la reconnaissance et la nomination des spécialistes dûment qualifiés, d'accorder après examen

Royal College President F. A. Smith, Vancouver, delivers the inaugural address.

Le Dr F. A. Smith de Vancouver prononce l'allocution présidentielle.





Honorary Fellow T. G. Ward of London, England, delivers the convocation address.

Le Dr T. G. Ward de Londres (Angleterre) prononce un discours de circonstances.

le titre de "fellow" et d'encourager la création de cours de spécialisation dans les facultés dentaires canadiennes. Les premiers examens pour le titre de Fellow auront peut-être lieu en février ou mars 1967. Les candidats au titre de Fellow devront être des praticiens des six spécialités reconnues par l'Association dentaire canadienne: la chirurgie buccale, l'endodontie, l'orthodontie, la périodontie, la prothèse et la pédodontie.

The College was created to promote high standards of specialization in the dental profession, set up qualifications for and provide for the recognition and designation of properly trained specialists, grant fellowships by examination and encourage the establishment and training programs in dental specialties in Canadian dental schools. The first examinations for fellowship may be held in February or March 1967. Candidates for fellowship must be practitioners of the six specialties recognized by the Canadian Dental Association: endodontics, oral surgery, orthodontics, periodontics, prosthodontics and paedodontics.



Ontario Lieutenant-Governor W. Earl Rowe confers an honorary fellowship on M. A. Rogers (centre) of Montreal.

Le lieutenant-gouverneur W. Earl Rowe de l'Ontario présente un 'fellow' honoraire au Dr M. A. Rogers de Montréal (au centre).

Nouvelles du Parlement

L'assurance-santé nationale est prévue pour le 1er juillet 1967

Le gouvernement fédéral a réaffirmé son intention de mettre en vigueur le 1er juillet 1967 son plan national d'assurance médicale, quel que soit le nombre de provinces qui y participent.

Le ministre de la santé nationale et du bien-être social, l'Honorable Allan MacEachen a annoncé à la Chambre des Communes le 17 mai que les contributions fédérales aux plans provinciaux approuvés débuteraient dès l'année prochaine.

Nous nous proposons, a-t-il déclaré, de présenter une loi qui permette au gouvernement fédéral de verser une contribution à toute province qui aura un plan en vigueur le 1er juillet 1967, plan qui corresponde aux quatre principes établis, et cela quel que soit le nombre de gouvernements provinciaux qui auront de tels plans en vigueur à cette date.

Les plans provinciaux doivent répondre aux quatre principes suivants:—

- fournir les services de médecin;
- couvrir l'ensemble de la population, soit au minimum 90 à 95 pour cent;
- assurer des bénéfices transférables dans d'autres provinces;
- dépendre directement du gouvernement, c'est-à-dire être administrés par le gouvernement ou par un organisme sans but lucratif sous le contrôle du gouvernement.

Le plan prévoit que le gouvernement fédéral paiera la moitié du coût national moyen des services de médecins fournis par les plans d'assurance provinciaux qui répondent aux normes nationales.

Le Québec, la Saskatchewan, le Nouveau-Brunswick et Terre-Neuve auraient

accepté les propositions fédérales. Le Manitoba, la Colombie britannique et la Nouvelle-Ecosse ont fait savoir qu'ils les accepteront. L'Alberta s'y oppose en principe et l'Ile-du-Prince Edouard trouve le plan trop coûteux. L'Ontario vient d'établir son propre plan (OMSIP) qui ne concorde pas avec les normes fédérales.

A l'extérieur de la Chambre, l'Honorable MacEachen a déclaré qu'il s'attendait toujours à ce que les 10 provinces se joignent au programme national l'année prochaine.

Maintenant ce sont les provinces, a-t-il dit, qui doivent se préparer à recevoir les contributions fédérales.

D'après les dernières prévisions, le coût des services de médecin s'élèverait à \$34 par personne et par an. Si toutes les provinces participaient, le coût national total serait de quelque \$650 millions. Le gouvernement fédéral en paierait la moitié et les provinces l'autre moitié avec leurs ressources fiscales ou en imposant des primes.

L'Honorable MacEachen a déclaré également qu'il espérait introduire bientôt une loi créant le Fonds des Ressources de Santé. Ce fonds fournira aux provinces une aide fédérale de \$500 millions étalée sur 15 ans, pour les aider à construire des écoles pour former le personnel des professions de santé.

Canada

Le Ministre de la santé de l'Ontario demande aux dentistes de conseiller le gouvernement

L'Honorable M. B. Dymond, ministre de la santé de l'Ontario, a tenu à préciser aux dentistes de cette province, réunis

pour leur 99ème congrès annuel, que son gouvernement cherchait à aider la profession dentaire et non à lui faire concurrence. Le ministre a déclaré le 17 mai, au cours d'une séance du congrès: "Nous sommes disposés à vous aider, mais nous avons besoin de la collaboration de la profession. Notre but n'est pas de remplacer des professions de santé mais de veiller à ce que ceux qui ont besoin de leurs services puissent en bénéficier. Le gouvernement ne peut pas exercer la dentisterie ni la médecine; il peut seulement guider, diriger et soutenir. Nous n'avons pas l'intention de prendre le contrôle d'aucune des professions du domaine de la santé."

Le docteur Dymond a demandé à la profession dentaire de conseiller le gouvernement sur le choix d'un emplacement d'une troisième faculté dentaire en Ontario. Il a déclaré également que le gouvernement s'attendait à ce que la profession dentaire lui indique nettement ce que doivent être la formation et les tâches des auxiliaires dentaires. Un désaccord était apparu avec la profession dentaire l'année dernière lorsque la Commission Hall avait suggéré de confier aux auxiliaires une certaine part des traitements pour enfants. Le ministre a dit qu'il n'avait pas l'intention de décréter quelle formation les auxiliaires devraient avoir ni quelles fonctions elles devraient remplir.

Le ministre s'est déclaré préoccupé par la fragmentation des services de santé et le besoin de les coordonner. Il a expliqué qu'on ne peut pas morceler l'individu en diverses spécialités; qu'il ait besoin de soins pour une dent ou un ongle du pied, il faut savoir où l'envoyer. On a trop tendance dans les sciences sociales à envoyer les gens d'un côté et de l'autre. Le gouvernement de l'Ontario veut créer un conseil de la santé provincial et plusieurs conseils de la santé régionaux. Ils rassembleraient toutes les branches des professions de la santé.

Le ministre a déclaré que c'était pour des raisons purement économiques que la dentisterie n'avait pas été incluse dans l'Ontario Medical Services Insurance Plan (OMSIP). On ne disposait pas actuellement des fonds nécessaires, mais avec le temps on arriverait dans la province à un

système complet d'assurance-santé pré-payée.

L'Association

Le Conseil pour la recherche accorde \$13,535 de bourses

Le Conseil pour la recherche, qui s'est réuni les 4 et 5 avril, a accordé pour \$13,535 de bourses d'études et de bourses d'été à 10 étudiants canadiens gradués et sous-gradués.

Les bourses d'études post-universitaires ont été attribuées à D. V. Chong (\$3,000); W. S. Flatt (\$1,450); J. K. Hicks (\$1,250); B. Liebgott (\$600) et G. E. Longhurst (\$2,900). Tous sont de l'Université de Toronto.

Les bénéficiaires des bourses d'été 1966 sont F. E. Levine, de l'Université McGill; L. Brodeur, de l'Université de Montréal; J. Benbenick, de l'Université de Toronto; J. Levinson, de l'Université du Manitoba et R. E. Racine, de l'Université de l'Alberta. Ces bourses d'été dont le total s'élève à \$4,335 permettent d'employer les bénéficiaires dans les laboratoires de recherche de leurs universités respectives.

Par ailleurs, le Conseil a mis à jour la déclaration de l'ADC sur sa politique au sujet de la fluoruration des eaux.

Le Conseil a aussi désigné deux sous-comités — le premier pour examiner les possibilités de création d'un fonds pour la recherche industrielle qui servirait à financer les tests des produits dentaires, le second pour étudier les possibilités de création d'un Prix canadien pour la recherche dentaire.

Chronique internationale

Cours d'implants à Paris, du 14 au 21 novembre

Les dentistes canadiens sont invités à assister à un cours d'implants qui aura lieu du 14 au 21 novembre à l'hôpital Lariboisière de Paris. Le programme a été conçu pour un auditoire nord-améri-

cain et couvrira toutes les méthodes d'implantation, y compris les implants sub-périostéaux et endo-osseux.

Les frais du cours sont de \$260, payables comme suit: \$100 avec la demande d'inscription et \$160 à l'arrivée au cours.

Pour tous renseignements supplémentaires, s'adresser à R. Chercheve, 5 avenue de l'Opéra, Paris, France.

Congrès à la Jamaïque en janvier 1967

Les dentistes canadiens sont invités à assister au troisième congrès national de la Jamaica Dental Association, du 22 au 27 janvier 1967. Le congrès se tiendra au Kingston-Sheraton Hotel, à Kingston. Pour tous renseignements, écrire à G. C. McDowell, P.O. Box 19, Kingston 5, Jamaica, WI.

Organismes dentaires

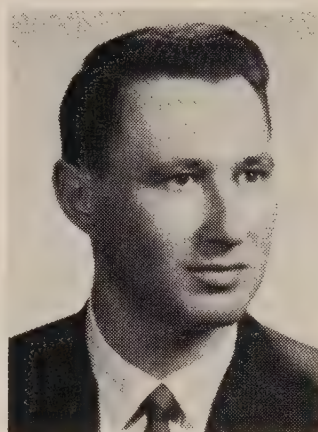
L'Association de l'Ontario adopte une nouvelle constitution

L'Ontario Dental Association vient d'adopter une nouvelle constitution qui entrera en vigueur le 1er janvier 1967. Tous les membres du Bureau des Gouverneurs actuel, à l'exception du président et du président-élu, donneront leur démission le 31 décembre. À dater du 1er janvier 1967, les sociétés dentaires locales seront intégrées à l'association provinciale et seront représentées au nouveau Bureau des Gouverneurs, lequel sera élargi. Chaque société élira un délégué et un substitut, elle aura de plus droit à un autre délégué et un autre substitut par 50 membres. On s'attend à ce que l'Association dentaire de l'Ontario cherche à remplacer le Collège royal des chirurgiens-dentistes de l'Ontario comme membre corporatif pour l'Ontario dans l'Association dentaire canadienne.

Le Dr H. L. Levitt devient président du Mount Royal Dental Society

L'installation du nouveau président du Mount Royal Society, le docteur H. L.

Levitt, a eu lieu le 8 mai dernier. C'est le docteur Maxwell Levitt, père du nouveau président et lui-même ancien président de la société qui présidait à la cérémonie. Le docteur Levitt remplace le docteur D. Zacharin à la présidence de la société qui célèbre cette année son 45ème anniversaire.



H. L. Levitt

Les autres responsables pour cette année sont les docteurs Benjamin Sedlezky, vice-président; Melvin Shevell, secrétaire; E. Slapcoff, trésorier; A. S. Wainberg, secrétaire adjoint et I. Lubin, historien-archiviste.

Le docteur M. H. Toker a été nommé membre honoraire et le docteur F. Mendel a reçu une citation spéciale.

Economie

L'assurance dentaire du personnel de l'ADC fonctionne depuis quatre ans

Le programme d'assurance dentaire pour le personnel du siège social de l'ADC a coûté moins cher à l'Association en 1965 que pendant les autres années où les avantages étaient moins étendus. L'année dernière le nombre des assurés a été plus bas et le coût des soins a été sensiblement inférieur (de \$252) à celui de 1964.

Le Bureau des recherches économiques rapporte que la périodontie et la dentisterie opératoire ont été plus coûteuses en 1965 que pendant la période 1962-64, mais qu'on a moins dépensé en restaurations que pendant chacune des années précédentes.

Le plan assurait 16 employés et 12 dépendants l'année dernière. Plus de 85 pour cent des employés et 60 pour cent des femmes d'employés ont reçu des soins au cours de l'année. Le total des frais s'est élevé à \$1,200. L'ADC en a payé \$755, soit les deux tiers du coût total des soins, ou \$48 par employé assuré.

Le programme d'assurance de l'ADC a été établi en 1962 dans le but de fournir l'expérience de la gestion d'un plan de soins dentaires de groupe. D'après cette expérience, si le plan avait été financé par le versement de primes mensuelles, la table des taux aurait été de \$3.80 pour une personne seule, \$7.60 pour un couple et \$11.40 pour une famille.

La population se prononce pour l'assurance-santé volontaire

Un sondage récent de l'Institut canadien d'opinion publique sur l'assurance médicale obligatoire révèle ce que les canadiens en pensent.

Une majorité écrasante soutient l'assurance-santé, mais la forme qu'elle doit prendre est très discutée. Entre la participation volontaire et obligatoire, les gens penchent vers la participation volontaire.

La majorité des adultes (52 pour cent) pensent que les canadiens devraient rester libres de décider s'ils y participent ou non.

C'est seulement au Québec que la majorité des gens préfèrent une assurance couvrant toute la population plutôt qu'une assurance volontaire. Et même dans cette province, la majorité est très faible: 47 pour cent pour la participation obligatoire et 46 pour cent pour la participation volontaire. Dans toutes les autres parties du pays 50 pour cent ou plus de la population sont en faveur d'une assurance-santé volontaire.

La Colombie britannique possède le premier plan d'assurance dentaire au Canada

Le premier plan d'assurance dentaire pré-payée au Canada est entré en vigueur le 1er juillet en Colombie britannique. Il couvre 1,200 membres du Local 280 du syndicat des Sheetmetal Workers and



Le premier plan d'assurance dentaire pré-payée au Canada est entré en vigueur en Colombie britannique. Lors de la signature du contrat, l'on voit de gauche à droite, M. Joseph Corsby, gérant de la Société de santé du CU & C, société administratrice du plan; M. James Mead, fonctionnaire du syndicat des Structural Workers; et le Dr William Joiner, président de l'Association des services dentaires de la Colombie britannique.

Flat Deck Roofers. En comptant les femmes et les enfants des assurés, le plan couvrira plus de 4,800 personnes.

Le plan a été rendu possible grâce à la collaboration de l'Association des services dentaires de Colombie britannique (c'est-à-dire la corporation de services dentaires de la province), de la Société de services de santé du CU & C, et du syndicat.

Le président de l'Association des services dentaires, W. M. Joiner, de Vancouver a déclaré que les dentistes étaient ravis de pouvoir offrir la première assurance dentaire pré-payée au Canada.

Un représentant du CU & C a fait savoir que cet organisme était prêt à offrir des plans dentaires semblables aux groupes d'employés qui sont actuellement assurés par le CU & C.

Le plan prévoit que les employeurs versent au fonds du bien-être du syndicat une prime de 12 cents de l'heure pour leurs employés. Le fonds paiera au CU & C \$6.16 par mois pour chacun des 915 membres mariés du syndicat et \$2.60 par mois pour chacun des 250 employés célibataires.

Le CU & C et les patients paieront chacun 50 pour cent des honoraires des dentistes, suivant le système de la co-

assurance. On espère que la quote-part à payer en vertu de la co-assurance diminuera à mesure que le plan se développera.

Les soins dentaires devraient être gratuits pour les pauvres

Lors de sa réunion annuelle du 18 mai à Toronto, le Conseil du Bien-Etre social de l'Ontario a émis le vœu que les soins dentaires deviennent gratuits pour les personnes de revenu très modeste.

Au total quatre cents personnes (travailleurs sociaux, administrateurs, responsables du United Community Fund, ecclésiastiques et laïcs) assistaient à la réunion.

Le Conseil a également réclamé des cliniques dentaires dans les hôpitaux pour les patients de revenu modeste.

Le Social Planning Council of Metropolitan Toronto et la Guelph Children's Aid Society ont présenté des résolutions relatives aux soins dentaires dans lesquelles ils déplorent le fait que les personnes de revenu modeste ne reçoivent pas de soins dentaires gratuits et que les personnes sous assistance publique n'obtiennent que des extractions urgentes.

Les résolutions déclarent que l'hôpital est le seul endroit où les familles de revenu très modeste peuvent recevoir les soins dentaires dont elles ont besoin.

Actuellement, seul un hôpital canadien sur cent possède des installations dentaires approuvées par l'Association dentaire canadienne. Certains hôpitaux ont des cliniques dentaires, mais le plus souvent on ne les utilise que lorsque les soins dentaires font partie d'un plan de traitement médical.

Palmarès

Le docteur **M. H. Toker** a été nommé membre honoraire du Mount Royal Dental Society le 8 mai dernier, en reconnaissance de nombreuses années de collaboration aux activités de la société.

Le docteur **Frank Mendel** a reçu une citation spéciale de la société, en reconnaissance de 50 années de dévouement au service de ses confrères.

Messieurs **Gérard Archambault** et **Yvon Simard**, nouveaux diplômés de la Faculté de chirurgie dentaire de l'Université de Montréal, ont mérité les deux prix du concours annuel du 'Mémorial de Guerre' de l'Association dentaire canadienne. Ce concours ouvert à toutes les facultés dentaires du Canada avait, pour thème: "Du mécanisme de formation des calculs dentaires et de leur importance en stomatologie."

Spécialistes en chirurgie dentaire • Il y a 273 spécialistes dans les cinq spécialités reconnues par l'Association dentaire canadienne: 66 en chirurgie buccale, 145 en orthodontie, en pédodontie, 46 en périodontie et cinq en prothèse. Des spécialités sont reconnues dans toutes les provinces, excepté Terre-Neuve. Certaines provinces en reconnaissent d'autres spécialités. — Bureau des recherches économiques de l'ADC.

Dr. Coupland installed as president at Halifax convention

On Monday June 13, dentists from coast to coast and their guests from Canada and abroad gathered in Halifax for the Sixty-Fifth Annual Meeting of the Canadian Dental Association. A comprehensive scientific program, including panel discussions, essays, projected clinics, table clinics, motion pictures, scientific and technical exhibits presented the latest information on various aspects of dentistry. The annual meeting of the Board of Governors, held from June 8-11, preceded the convention. The members of the Board, in considering the nation's dental health problems, set policies for the Association for the coming year.

J. P. Coupland of Ottawa was installed as 46th president of the Canadian Dental Association at the noon luncheon on June 13. He succeeds P. S. Christie of Halifax. Past President P. G. Anderson, Toronto, officiated at the installation.

Born in St. Mary's, Ontario, Dr. Coupland earned a DDS degree from the University of Toronto in 1930. He served with the Royal Canadian Dental Corps from 1942 until 1945. Dr. Coupland was certified in oral surgery in 1948 and is on the staff of Ottawa Civic Hospital. A past president of the Eastern Ontario Dental Association, Dr. Coupland has served on the Canadian Dental Association's Board of Governors since 1958 and on the Executive Council since 1961. He is currently president of the Royal College of Dental Surgeons of Ontario and is a member of the Canadian Society of Oral Surgeons and the American Society of Oral Surgeons.

W. P. Munsie, Vancouver, was named

president-elect of the Association. A member of the Executive Council, Dr. Munsie has also represented the College of Dental Surgeons of British Columbia on the Board of Governors for several years.

Named as members of the Executive Council were W. G. Bruce, Kincardine, Ontario; H. R. MacLean, Edmonton; Henri Brouillet, Montreal; and O. J. Yule, Toronto.

Elected as chairmen of councils and committees were J. P. Coupland of Ottawa, Executive Council; H. M. Cline, Halifax, Council on Constitution and By-laws; James McCutcheon, Montreal, Council on Education; H. N. Beach, Ottawa, Council on Ethics; J. M. Phillips, Oshawa, Ontario, Council on Journalism; A. H. Crowson, Ottawa, Council on Legislation; A. R. S. Gray, Calgary, Council on Public Health; R. M. Grainger, Toronto, Council on Research; G. C. Swann, Calgary, Auxiliary Services Committee; R. G. Ellis, Toronto, 1967 Convention Committee; H. G. Pettapiece, Parksville, British Columbia, Dental Services Committee; G. V. Fisk, Toronto, Headquarters Property Committee; A. S. Brown, Toronto, Hospital Services Committee; W. P. Munsie, Vancouver, Nominations Committee; and O. J. Yule, Toronto, Specialists and Specialization Committee.

Honorary memberships in the Canadian Dental Association were conferred on Heath McIntyre, Charlottetown, and A. J. Cormier, Moncton.

Local arrangements were made by Halifax dentists under the direction of W. B. Coleman, convention chairman.

J. P. Coupland, President



Top: Seated at the Board of Governors head table are (l. to r.) K. L. Croft, deputy secretary; W. G. McIntosh, secretary; P. S. Christie, retiring president; J. P. Coupland, president; G. M. Dewis, treasurer; and Rémy Langlois, former president. Centre: In one of the reference committees H. L. Mussells, Montreal, and H. R. MacLean, Edmonton, listen attentively to L. E. English, Vancouver. Bottom: M. A. Rogers (l.), Montreal, interprets a fine point in the report on specialists and specialization to reference committee members J. E. Abra, Winnipeg, and O. J. Yule, Toronto.

Top: Dr. Christie (second l.) discusses advances in preventive dentistry with CDA panelists Lt.-Col. D. H. Protheroe, R. A. Clappison, J. Kreutzer and H. A. Grimsrud. Centre: The registration and information area was a centre of activity throughout the convention. Bottom: Commercial exhibits like this one attracted delegates from all parts of the nation.



Top: Dr. Christie delivers the presidential address at the CDA luncheon June 13. Centre: A. J. Cormier (r.), Moncton, New Brunswick, receives certificate of honorary membership. Making the presentation are H. S. Thomson (l.) and P. S. Christie. Bottom: Heath McIntyre, Charlottetown, was similarly honoured.



The Executive Council held two busy sessions in Halifax June 4-6 and June 12. Seated clockwise around the conference table are O. J. Yule, Toronto; H. R. MacLean, Edmonton; J. P. Coupland, Ottawa; W. G. McIntosh, secretary; P. S. Christie, retiring president; K. L. Croft, deputy secretary; G. M. Dewis, treasurer; and W. G. Bruce, Kincardine, Ontario.

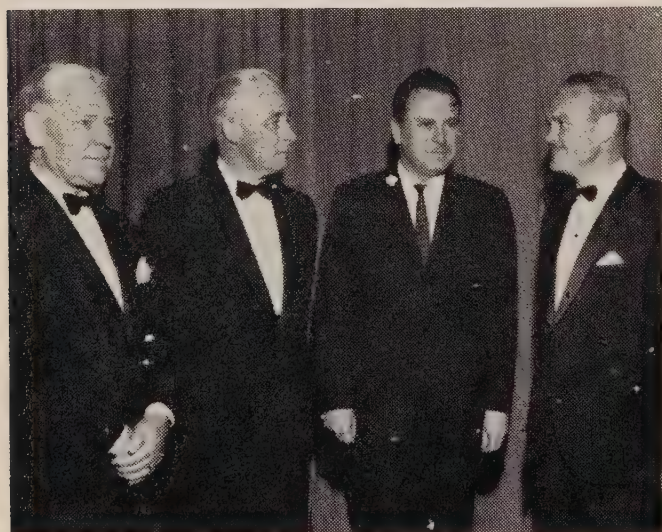
Board of Governors Actions

At the opening session members of the Board of Governors and others in attendance observed one minute of silence in memory of Association members who died during the past year.

PRESIDENT'S REMARKS

President Christie then delivered the president's report. He referred to the eventuality of government intervention in the provision of dental services and called

Federal Health and Welfare Minister A. J. MacEachen was the speaker at the president's banquet. He is flanked in this picture (l. to r.) by Doctors Coupland, Christie and McIntosh.



on the Association to formulate a plan of its own with practical alternatives for any objectionable features in a government scheme. Without such a plan in readiness, we may be forced to devise imperfect alternatives at very short notice, Dr. Christie warned.

The president also urged the corporate members to inform provincial health ministers of the profession's needs under the \$500 million Health Resources Fund proposed by Ottawa.

Dr. Christie concluded his remarks with a reference to the steadily growing demands upon the Association's financial and staff resources. He warned that the Association would need additional income in order to meet operational expenditures which now exceed current income by a critical margin. "The necessity of engaging more staff at the executive level is inescapable if the headquarters is to function in accordance with the Board's requirements," he added.

The Board then considered reports submitted by each of the Association's councils, committees and sections and took the indicated action in the following matters:

AUXILIARY PERSONNEL

Requested early establishment of an independent investigating committee to

study all aspects of auxiliary dental services (as envisaged in Section 89 of the CDA Statement on the Recommendations of the Hall Commission);

Requested that the Council on Education establish minimum curriculum requirements for dental assistants' training programs;

Asked the Council on Education to set forth minimum requirements for the approval of a formal school for dental assistants and for dental assistants' extension course programs sponsored by local dental societies;

Urged local and provincial dental associations to establish formal training programs for dental assistants based upon the minimum curriculum requirements to be formulated by the Council on Education;

Authorized a conference to consider the formation of a national organization of dental technicians, accreditation of training programs, improvement of the educational and economic status of dental technicians, accreditation of dental laboratories, and improvement of co-operation between the profession and dental technicians;

Recommended that "one or more dental schools conduct . . . pilot studies on the duties of auxiliary personnel;"

Suggested that the corporate members attempt to reconcile interprovincial discrepancies in the duties of dental hygienists and amend their rules and regulations accordingly;

Asked the Council on Education to determine whether degree courses in dental hygiene should be conducted;

Asked the Auxiliary Services Committee to define an expanded range of duties for dental hygienists; and

Instructed the Executive Council to review the CDA policy statement on "Projection of Dental Services."

be communicated to the public, to governments and to legislators; and

Asked corporate members to study the practicability of establishing denture clinics.

SPECIALTIES AND SECTIONS

The Board also:

Asked that the Royal College of Dentists of Canada reconsider its policy which restricts dentists who are academically qualified in areas not presently recognized as specialties from proceeding toward fellowship;

Asked the Executive Council to explore the possibility of establishing liaison between the Canadian Dental Association and the Royal College of Dentists of Canada;

Recognized endodontics as a specialty and endodontists as specialists;

Recognized the Canadian Academy of Restorative Dentistry and the Canadian Academy of Endodontics as new sections of the Canadian Dental Association; and

Declared a moratorium on the recognition of additional specialties pending a review of existing policy on specialties by the Committee on Specialists and Specialization.

DENTAL SERVICES AND RESOURCES

The Board:

Instructed the Dental Services Committee to develop a dental health plan for children; and

Asked that corporate members establish committees to "seek communication with and advise the provincial ministers of health upon the requirements of dentistry relative to . . . the Health Resources Fund."

ILLEGAL PRACTICE

The Board:

Requested the corporate members to collate information useful in presentation of the profession's viewpoint on this subject, and directed that this information

INSURANCE

The Board:

Transferred trusteeship for CDA-approved pension and insurance plans to the Advisory Committee on Commercial Insurance;

Asked that future reports from the administrator of CDA-approved pension and insurance plans be directed to the Advisory Committee on Commercial Insurance Plans; and

Instructed this committee to prepare a statement of principles governing the Association's participation in insurance plans for its members. The Board also requested that this statement include guidelines relative to individual and group plans and that it define the relationship between the Association, insurance carriers, brokers of record and collectors of premiums.

FOREIGN DENTISTS

The Board asked the Council on Education to study the feasibility of establishing a facility for examining graduates of unapproved foreign dental schools, the purpose of this facility being to ascertain the academic level to which an applicant to a Canadian dental school might aspire.

BUDGET AND FISCAL ARRANGEMENTS

The Board:

Adopted a budget amounting to \$262,310 for 1967;

Approved a new policy on acceptance of grants from commercial sources;

Directed that the secretary resume negotiation at an appropriate time with the Department of Finance relative to income tax relief for attendance at postgraduate courses;

Authorized the acquisition of securities approved by the Trustee Act (Ontario) as well as the investment of up to 25 per cent of the reserve fund in a recognized mutual or equity fund; and

Requested the Executive Council to develop a statement of principles governing reserve funds.

OTHER ACTIONS

The Board also:

Gave approval in principle to new

guidelines for the operation of annual board meetings;

Adopted a policy on duties of CDA governors;

Approved the transfer of Ontario corporate membership from the Royal College of Dental Surgeons of Ontario to the Ontario Dental Association effective May 1, 1967;

Adopted a statement which sets forth minimum requirements for the approval of a school of dental hygiene;

Reiterated its support for fluoridation of water supplies;

Recommended that all references to fees be deleted from denture clinic advertisements; and

Directed that corporate members comment on the advisability of establishing a nationwide dental legal protective association.

The Board also approved by-law amendments eliminating the Necrology and War Memorial Award Competition Committees and transferring responsibility for the War Memorial Award Competition to the Council on Education.

The Board also requested that the Council on Constitution and By-laws review Article XVII of the By-laws dealing with mail votes and define the meaning of "provincial statutory corporations" as set forth in Article II of the By-laws.

Balanced Budget Necessitates Curtailment of Services to Profession

The Executive Council has cut \$14,650 from Bureau, Committee and Council budget askings in order to achieve a balanced budget in 1967.

Authorized expenditures next year will total \$262,310. Anticipated income — including \$244,400 in grants from corporate members — will amount to \$262,400.

Budgetary reductions — reflecting a curtailment of some services to the profession — were ordered when Treasurer Dewis warned that the successive deficit budgets of recent years may deplete the Association's working capital before the end of the current year.

Noting the burgeoning of Association affairs and the resultant escalation of costs, the Board of Governors asked that

individual governors acquaint corporate members with the scope of the problem and "its only reasonable solution—an increase in corporate member grants."

National Convention Highlights

The national convention program began on Sunday evening June 12 with a 'Gathering of the Clans' set to the songs of the Halifax Jubilee Singers and the strains of troubadour music.

The principal essayist on Monday morning was C. O. Boucher, Columbus, whose subject was prosthodontics. Also on Monday morning, G. M. Anderson, Baltimore, delivered the George Wellington Grieve Memorial Lecture.

Retiring President P. S. Christie presided at the CDA luncheon on Monday noon.

A variety of table clinics on orthodontics, prosthodontics, operative dentistry, crown and bridge prosthodontics, surgery, practice administration, endodontics, radiology, periodontics and dental public health were presented on Monday afternoon.

Dr. Boucher resumed the essay program on Tuesday morning. He was followed by R. W. Phillips, Indianapolis, whose topic was dental materials.

The Tuesday afternoon session began with the CDA panel presentation on preventive dentistry. Participants included J. Kreutzer, Toronto; H. A. Grimsrud, Regina; Lt.-Col. D. H. Protheroe, Camp Borden, Ontario; and R. A. Clappison, Toronto. President P. S. Christie was the panel moderator. An essay on drug therapy, delivered by P. R. Dumke, Detroit, rounded out the Tuesday afternoon session.

Dr. Dumke led off the Wednesday morning essay program. He was followed by R. L. de C. H. Saunders, Halifax, who spoke on x-ray microscopy of dental pulp blood vessels. Wednesday afternoon was taken up with two further presentations—one on dental materials, by R. W. Phillips, and the other on examination and diagnosis in child patients, by Norman Levine, Toronto. The luncheon on Tuesday was tendered by the City of Halifax. Official host for the Wednesday luncheon

was the Nova Scotia Dental Association. Federal Health and Welfare Minister A. J. MacEachen was the speaker at the President's Banquet on Wednesday night. This was followed by the President's Ball, the star social event which brought the official convention program to a close.

News from Parliament

Health Resources Bill Passed by Commons

Federal Health and Welfare Minister A. J. MacEachen on June 14 introduced the following resolution in the House of Commons:

"That it is expedient to introduce a measure to provide for the establishment of a health resources fund to assist provinces in the acquisition, construction and renovation of health training facilities and research institutions and for the appropriation in connection therewith of the sum of \$500 million to be credited to the fund in such amounts as from time to time are required and to provide for contributions therefrom to the provinces; to provide further for the establishment of a health resources advisory committee consisting of 11 members and for the payment of reasonable travelling expenses of its members."

Following lengthy debate, the resolution was reported and concurred in. Mr. MacEachen thereupon introduced Bill C 199 to provide for the establishment of the Health Resources Fund. This bill was passed by the House of Commons on June 27.

\$300 million of the fund will go to the provinces that present an overall provincial plan covering a five-year period. A further \$25 million will be set aside for the Atlantic provinces over and above what they are entitled to under the per capita formula for all provinces. The remaining \$175 million will be reserved for health training and research facilities designed to meet national needs. This money will be allocated by the federal government.

Mr. MacEachen said the fund will provide assistance for projects worth more than \$1 billion since the federal contribution from the fund will not exceed 50 per cent of the costs of any project.

Canada and the Provinces

Dental Plan in 1980's, Says MacEachen

A comprehensive dental service program may be installed by the 1980's, said National Health and Welfare Minister Allan J. MacEachen during an address delivered to the annual meeting of the Canadian Dental Association in Halifax June 15.

This date, some 20 years in the future, may suggest that there is no urgency for immediate action, he said. But the provision of dental services to only 5 per cent more of the Canadian population by 1975 would require the equivalent of a thousand more dentists. Therefore the planning and training of necessary additional personnel must be initiated on a significant scale as soon as possible, the minister said.

Mr. MacEachen said the Hall Commission stressed the importance of increasing the number of dentists and dental facilities. Once this has been achieved, he said, the provinces will be in a position to start a program for young children and gradually work their way toward a program covering all those up to the age of 18.

"Such a program," he said, "recognizes the realities of present circumstances" and the importance of regular dental care throughout a person's formative years.

Mr. MacEachen expressed full agreement with the Canadian Dental Association's view that dental health educational programs must precede and accompany treatment services. Consequently, dental public health programs must be expanded at every level, he said. Mr. MacEachen also reiterated his endorsement of fluoridation.

The minister said the only source of financial assistance at the federal level for dental research, required to translate basic scientific investigations into practical public health and clinical application, is provided through the Public Health Research Grant program. Currently there are 11 dental projects in six provinces being supported by the Public Health Research Grant.

In addition, he said, all Canadian dental schools, along with medical schools

and schools of hygiene, may apply for special support to be used to strengthen their faculties in the areas of biostatistics and epidemiology.

New Regulations Affect Narcotics and Controlled Drugs

The federal government has issued new regulations concerning narcotic drugs. The new directives cover records that must be kept by a dentist who furnishes narcotics or controlled drugs to patients for self-medication.

The practitioner who furnishes such drugs must henceforth keep a record showing the name and quantity of the drugs, name and address of the supplier, date of its receipt, name and address of the person to whom it was furnished, and the date on which it was furnished.

The practitioner must keep this record whenever the supply he dispenses exceeds a three day quantity regardless of whether or not he charges the patient for the drug he furnishes.

The records must be kept so as to permit an inspector to have access to them.

Royal Bank Offers \$50,000 Centennial Award

In 1967 the Royal Bank of Canada will offer an award of \$50,000 for outstanding achievement to a Canadian citizen or person domiciled in Canada. Royal Bank President W. E. McLaughlin said the project will be his bank's contribution to mark the centennial of Canadian Confederation.

Eligible persons will be those who have contributed through the natural and social sciences, the arts and humanities or the business and industrial world to the common good and human welfare of Canada and the world.

Candidates will be selected by an independent selection committee. The award will be granted each year for five years commencing in 1967.

"We believe that something tangible should be done to recognize the contributions of Canadian citizens," Mr. McLaughlin wrote in a letter to CDA Past

President P. S. Christie. "You, and others with whom you are in touch, may know of men or women whose achievements could be considered by the Selection Committee for the award."

May Tighten Dentists' Discipline in Ontario

Dentists who are guilty of breaches of professional ethics will face fines of up to \$1,000 under amendments to the Dentistry Act introduced in the Ontario Legislature June 7. The amendments were proposed by the Royal College of Dental Surgeons.

In the past, the College has had the power to reprimand or suspend dentists but could not impose fines.

The new legislation also empowers the Discipline Committee of the College to impose penalties of up to one year's suspension of licence.

At present, the Discipline Committee can hear charges but penalties must be imposed by the Board of the College. Under the new bill, only the Board will be permitted to impose penalties of more than one year's suspension or to cancel a dentist's licence.

Dentists who are disciplined have the right of appeal from the Discipline Committee to the Board or from the Board to the Ontario Court of Appeal.

Under the new legislation, suspension will take place immediately the Discipline Committee makes its ruling, even when the dentist concerned decides to appeal the ruling.

New Regulations Approved under the Ontario Public Hospitals Act

Ontario Hospital Services Commission Regulation 523 now provides the necessary legal climate in which a dental service may operate in an Ontario public hospital. Details about a recent amendment to this effect were contained in an article by F. A. Evis titled "The Legal Place of the Dentist in an Ontario Public Hospital" and published in the April 1966 *Journal of the Canadian Dental Association*.

Ontario dentists who are involved in

formulating hospital by-laws may procure a copy of these regulations by writing to the Ontario Hospital Services Commission, 2195 Yonge Street, Toronto, Ontario.

Science Fair Winners Honoured



Canadian Science Fair winners Marijane Doyle (centre) of Welland, Ontario, and Colin Griffiths of Victoria received CDA awards from Bernard Dumont of the Quebec City School Commission.

Seventy-four finalists from 27 regional science fairs across the nation participated in the fifth Canada-wide Science Fair held at the University of Windsor May 12-14. Winners of the two Canadian Dental Association awards were Marijane Doyle, grade 10 student from Welland, Ontario, and Colin Griffiths, Victoria, who is in grade 8.

The Canadian Dental Association is one of the sponsors of the Youth Science Foundation (formerly known as the Canadian Science Fairs Council). This year T. H. Wachna of Windsor represented the Association on the judging committee.

Toronto Technicians School Starts in September

Mr. C. C. Lloyd of the Ontario Provincial Institute of Trades and Occupations has announced that a new training course for dental technicians will commence in September of this year. The course will be of two years' duration with the possibility of an optional third year being added. Mr. Walter Wood of Toronto has been appointed technician instructor.

International Items

ADA Recognizes Fourth Dentifrice

The American Dental Association has announced recognition of Super Stripe toothpaste, manufactured by Lever Brothers Company, as "an effective decay-preventive dentifrice" and classified the dentifrice in group B. This is the fourth dentifrice to receive such recognition by the ADA. The active ingredient in all four dentifrices is stannous fluoride.

In an accompanying statement, the ADA Council on Dental Therapeutics noted that the "trade name, Stripe, has been applied previously to a non-fluoride dentifrice. That product will be replaced by the new stannous fluoride formulation, which will be designated as Super Stripe in order to distinguish it from the earlier formulation."

The council report noted that data from a two year study of school children using the test dentifrice and a controlled dentifrice indicated a "significant reduction in the incidence of dental caries. Based on increments in decayed or filled surfaces, the two year results indicate approximately a 19 per cent reduction."

Dental Organizations

International College of Dentists Canadian Section Gains Five New Fellows

D. H. Tanner, Ottawa, took over the presidency of the Canadian Section of

the International College of Dentists at a convocation in Halifax June 11. Other officers for 1966-7 are T. H. Johns, Victoria, president-elect; Armand Fortier, Montreal, vice-president; J. P. McGuigan, Halifax, past president; H. R. Skilling, Toronto, treasurer; and E. A. White, Toronto, registrar.

Elected as regents were C. M. Whitworth, Vancouver, District 1; L. T. Allen, Lethbridge, Alberta, District 2; J. P. Whyte, Swift Current, Saskatchewan, District 3; W. J. Riley, Winnipeg, District 4; Murray Purcell, Pembroke, Ontario, District 5; John Sherman, Toronto, deputy regent, District 5; W. J. Johnston, Montreal, District 6; Conrad Godin, Trois Rivières, P. Quebec, deputy regent, District 6; G. M. Dewis, Halifax, District 7; and C. L. Strachan, London, Ontario, editor.

Inducted as fellows of the College were H. N. Beach, Ottawa; W. W. Breslin, Toronto; C. E. Dexter, Halifax; Harold MacCormack, Truro, Nova Scotia; and J. B. Taylor, London, Ontario.

Oral Surgeons to Meet in October

The Canadian Society of Oral Surgeons will hold a meeting at the Alpine Inn, Ste. Marguerite, P. Quebec, October 22-23. The meeting will discuss problems affecting oral surgery on both the national and local levels. All oral surgeons are invited to attend.

For further information please write to W. B. Donohue, Suite 513, 1414 Drummond Street, Montreal, P. Quebec.

Dr. Moscovich Heads Vancouver Society

S. R. Moscovich took over the presidency of the Vancouver and District Dental Society at a meeting on May 3. He succeeds J. A. Folkins. President-elect of the Vancouver society is R. C. Tully. Other members of the 1966-67 executive are O. K. Weaver, secretary; D. A. Hopgood, treasurer; A. A. Fraser, E. Y. Minato, J. E. G. Harrison and J. L. Hornibrook, directors.

Seen at the annual convocation of the Canadian Section, International College of Dentists, held in Halifax June 11, are (l. to r.) J. B. Taylor, London, Ontario; Harold MacCormack, Truro, Nova Scotia; C. E. Dexter, Halifax; W. W. Breslin, Toronto; and H. N. Beach, Ottawa. G. M. Dewis, Halifax, was the installing officer.

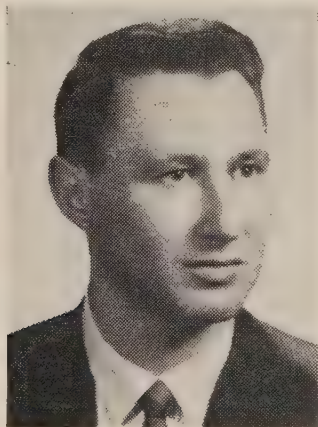


RCDS Studies Denture Service in Ontario

A committee of the Royal College of Dental Surgeons of Ontario is studying all aspects of supply and demand for denture service in Ontario. Headed by H. M. Jolley of Toronto, the committee was formed following receipt of a circular letter addressed anonymously to all persons employed in dental laboratories in Ontario. The letter requested support for changes in the Dentistry Act which would permit unlicensed persons to take impressions and fabricate dentures without the supervision or direction of a dentist.

Mount Royal Socy. Installs H. L. Levitt as President

H. L. Levitt



H. L. Levitt was installed as president of the Mount Royal Dental Society on May

8. The ceremony was performed by Dr. Levitt's father, Maxwell Levitt, a former president of the Montreal society. Dr. Levitt succeeds David Zacharin as president of the society which observes its 45th anniversary this year.

Other senior officers for the coming year are Benjamin Sedlezky, vice-president; Melvin Shevell, secretary; E. Slapcoff, treasurer; A. S. Wainberg, assistant secretary; and I. Lubin, historian-archivist.

Honorary membership was presented to M. H. Toker. Frank Mendel received a special citation.

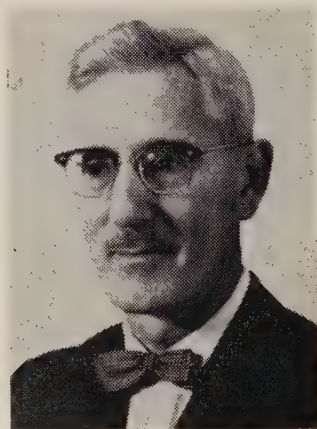
Canadian Dental Schools

Dr. Paynter Named U of Saskatchewan Dental Dean

President J. W. T. Spinks of the University of Saskatchewan has announced the appointment of K. J. Paynter, of the University of Toronto, as dean of the Faculty of Dentistry to be established at the University of Saskatchewan, Saskatoon. The appointment dates from July 1.

Establishment of the new dental school was announced last September. The school will be located in additions to be constructed to the medical building and the university hospital on the Saskatoon cam-

pus. Construction is expected to begin next spring.



K. J. Paynter

Dr. Paynter has been active in teaching and research. He was professor and head of the Department of Oral Anatomy and chairman, Division of Postgraduate Studies, Faculty of Dentistry, University of Toronto.

A native of Kingston, Ontario, Dr. Paynter is a graduate of the University of Toronto where he received the DDS degree in 1944. He served with the armed forces from 1944-47 and then conducted private practice in Ottawa from 1947-49. He resumed his formal education in 1949 and earned a PhD degree from Columbia University, New York, in 1953. That year he joined the Faculty of Dentistry, University of Toronto.

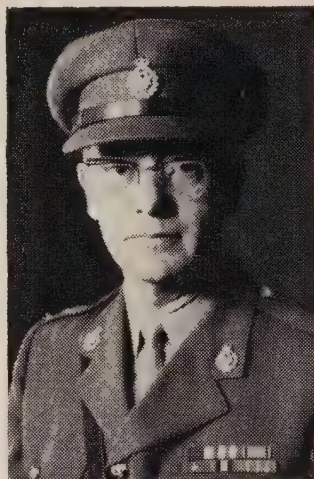
Dr. Paynter is immediate past chairman of the CDA Council on Research and a member of the Public Health Research Advisory Committee of the Dominion Council on Health.

Royal Canadian Dental Corps

Five Dental Officers Promoted

Canadian Forces Headquarters has announced the promotion of Maj. **W. H. Harrington** to the rank of lieutenant-colonel. Lt.-Col. Harrington is a graduate of McGill University and has seen service in Korea, on Royal Canadian

Navy ships, in the Yukon Territory, and with the RCAF Air Division in Europe. He earned a diploma in dental public health at the University of Toronto in 1964 and since that time has served as dental public health officer at the Directorate of Dental Services, Ottawa.



Lt.-Col. W. H. Harrington

Four other dental officers have also been promoted from captain to major. They are: **J. J. B. Houde**, RCAF Station, Moose Jaw; **L. Dombowsky**, RCAF Station, Chatham; **J. S. A. Marcil**, Collège militaire royal de St-Jean, P. Quebec; and **M. N. Deyette**, Headquarters, Western Ontario Area, London.

Twenty-two new dental officers have joined the Corps this year upon graduation from their respective universities.

Four dental officers were transferred to new locations during the summer. They are: Maj. **H. P. Guevremont** from No. 15 Dental Company to Headquarters, Mobile Command, Longueuil, P. Quebec; Capt. **L. N. Goldberg** from No. 12 Company, Halifax, to No. 13 Dental Company, Trenton, Ontario; Capt. **R. W. C. Adams** from No. 1 Dental Detachment, Ottawa, to No. 35 Field Dental Unit, France; and Capt. **A. Van Ryssel** from No. 35 Field Dental Unit, France, to No. 1 Dental Detachment, Ottawa.

Maj. **J. V. P. Chatwin**, who recently completed postgraduate training in dental public health at the University of Toronto, has been appointed as dental public health officer at Canadian Forces Headquarters, Ottawa.

Captains **G. J. B. Dionne**, **W. J. Sinclair** and **W. R. Kyle**, having completed

their tours of duty with the RCDC, have been released from the Corps.

Economics

OMSIP Now Covers Specified In-Hospital Dental Procedures

The Medical Services Insurance Act of Ontario has been amended to provide compensation for a wide range of surgical procedures when these are performed by a dentist in a hospital for a patient who has been admitted to that hospital. Compensation for certain additional surgical procedures will also be allowed if these operations are performed in hospital by a dental surgeon "whose hospital privileges are such that he is authorized to perform these procedures, and which dental surgeon has been appointed to the dental staff of the respective hospital on the recommendation of the chief of the surgical staff and the agreement of the medical advisory committee of the respective hospital."

A brochure outlining the relevant regulations and proper billing procedure is being sent by the Ontario Medical Services Insurance Plan authorities (OMSIP) to all dentists in Ontario.

Seek Free Dental Care for Poor

Dental care should be free for persons of low and marginal income, according to a resolution passed at the annual meeting of the Ontario Welfare Council in Toronto May 18.

Four hundred social workers, administrators, United Community Fund officials, clergy and laymen were present at the meeting.

Another resolution demanded dental clinics in hospitals for low income patients.

The Social Planning Council of Metropolitan Toronto and the Guelph Children's Aid Society complained in their dental care resolutions that marginal income persons get no free dental care and per-

sons on public assistance get only emergency extractions.

The hospital is the only place where dental needs of low and marginal income families can be met, the resolutions said.

At present, only one Canadian hospital in a hundred has dental facilities approved by the Canadian Dental Association. Of the hospitals that do have clinics, most use the clinic only when dentistry is part of a medical treatment plan.

Dentist: Population Ratio Declines in Ontario

Although 72 more licences were issued in 1965 than in the previous year, Ontario's dentist-population ratio is not keeping pace with the population growth. The present ratio is 1:2,495 compared with 1:2,463 the previous year.

By contrast, the deans of Ontario's two dental schools report an excess of applications for available places in the first year of their respective courses. The University of Toronto received 750 applications for the first year in dentistry while the University of Western Ontario received 88 applications for the eight available places in its first year class.

Fluoridation

New Fluoridation Deal for Alberta

A simple majority instead of a two-thirds requirement will constitute approval in all future fluoridation plebiscites held in Alberta. This amendment to the Public Health Act came into force on April 18.

The legislation, which earlier in the session had prompted a number of heated addresses, passed committee stage without a single word of opposition.

In an unexpected move, Health Minister J. Donovan introduced a second amendment which also passed without opposition. This called for the free distribution of fluoride tablets by any health unit or municipal health department to any resident who requests it and whose physician

or dentist has prescribed it. This amendment provides a method by which some fluoride protection can be provided in those communities where there is no central water supply or where fluoridation has failed to win approval.

Alberta's revised act leaves British Columbia (which requires 60 per cent) as the only Canadian province asking for more than a simple majority to approve fluoridation whenever a plebiscite is necessary.

Awards and Honours

W. J. Aitken, Prince George, was named 'Dentist of the Year' at the recent annual convention of the British Columbia Dental Association. Dr. Aitken was selected by his colleagues as the dentist who made the greatest contribution to community life in British Columbia during the past year.

Honorary membership in the Mount Royal Dental Society was conferred May 8 on **M. H. Toker** in recognition of many years of contribution to the activities and welfare of the Montreal society. **Frank Mendel** received a special citation from the Mount Royal society in recognition of 50 years of service to the community.

Deaths

Black, William Alexander. 87. Toronto. Royal College of Dental Surgeons of Ontario, 1907. 16-6-66.

Lacasse, Fernand Jean Gerard. 50. Windsor, Ontario. University of Toronto, 1942. 4-6-66.

Laurence, Raoul. 70. Coaticook, P. Quebec. Université de Montréal, 1921. 30-5-66.

Merritt, Ralph Allen. 45. London, Ontario. University of Toronto, 1950. 13-6-66.

Toveil, Garnet B. Guelph, Ontario. 14-6-66.

Bibliography of Canadian Publications on Aging • The Ontario Office on Aging (Ontario Department of Public Welfare) seeks assistance in the compilation of references, research reports and names of authors for a proposed "Bibliography of Canadian Publications on Aging." This project is an outcome of research sessions held at a January 1966 Conference on Aging which was supported by delegates from the provinces and territories as well as virtually every major professional association. The bibliography is intended to complement other and more international listings as well as information retrieval systems covering all areas of aging. Once it is established, references with abstracts will be made available on request to bona fide research workers in the field, to libraries, major professional associations, and so forth. For further information please write to "Bibliography," Ontario Office on Aging, Department of Public Welfare, Parliament Buildings, Toronto 5, Ontario.

Current Periodicals Available from CDA Library • The Librarian has prepared a list of Canadian and foreign periodicals and newsletters currently received by the CDA Library. These publications are available on loan to any member of the Canadian Dental Association. Readers who desire a copy of this list are invited to address their requests to the Librarian, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

Corticosteroid-antibiotic preparations in endodontics

Corticosteroid compounds have been recommended in endodontic therapy because of their known ability to suppress inflammatory response. This anti-phlogistic action may, however, facilitate the liberation of micro-organisms into the blood stream. Combinations of corticosteroids and antibiotics have therefore been advocated to reduce the risk of bacteraemia. The usefulness of these combinations has so far been largely based on their ability to reverse inflammatory reactions and relieve pain and other symptoms.

Some clinical and microscopic evidence suggests that corticosteroid-antibiotic combinations may aid in the survival of infected pulps. Two reports by Olsen and by Fiore-Donno and Baume which appear in this issue of the Journal tend to support this view. But the issue is not quite that simple for, as Fiore-Donno and Baume point out, there may be an arrestment of dentinogenesis at the site of pulp exposure as well as irreversible metaplastic changes of the pulp tissue. These authors also found that signs of residual chronic inflammation became more prominent as the postoperative period lengthened. The latter finding seems to suggest a gradual diminution of the anti-inflammatory effects of the material.

In view of these equivocal findings it may be the part of wisdom to confine the use of these agents to the capping of deciduous pulps, temporary relief of painful pulps in permanent teeth destined for extraction, and root canal medication when pulp necrosis is accompanied by periapical complications.

As Others See It

The medicare pressure play

There is no doubt that there is a considerable element of blackmail in Health Minister Allan MacEachen's medicare legislation. Health care falls constitutionally within the provincial jurisdiction. Yet a federal minister is telling the provinces that they will provide medicare programs that meet his standards, or forfeit federal assistance in the field. Dissenting provinces, moreover, will be compelled to help pay the federal subsidies to consenting provinces, for these subsidies will be drawn from consolidated revenue, to which all Canadians contribute.

Three provinces have made it clear that they do not approve of the federal plan in its present form — Ontario, Quebec and Alberta. Alberta rejects it as an abrogation of the principle of free enterprise. Quebec, under the Lesage government, approved it, but Premier Daniel Johnson has made it clear that while he favours medicare in the long run, he does not believe that Quebec can afford universal medicare now. He rejects the federal timetable, and he rejects the federal attempt to dictate in a field of provincial jurisdiction. Premier John Robarts believes that there are prior needs that should be met before universal medicare is introduced.

Apart from the constitutional angle, where the dissenting provinces are clearly on sound ground, there are other reasons why the provinces have a right to object to this federal dictation.

Universal medicare will be a major cost item, and the chief part of the cost will fall upon those very provinces that are objecting to it, particularly Ontario. The federal government will pay half the average cost of basic medical care in participating provinces. Ontario, which provides half of federal revenues, will thus pay half of the national costs. But its own share of the costs will be larger per capita than that of other provinces, for basic medical costs in Ontario average \$40, while the national average is estimated at \$34. Ontario would receive only \$17 per capita from the federal purse, and would have to pay \$23 itself.

Quebec's position would be little better, probably worse. Facing the enormous costs of modernizing an antiquated education system and providing the services that are essential to increase industrialization and employment, Quebec is unlikely to be able at this point to meet more than the medical costs of the needy, which it has arranged to do.

Yet upon these provinces and Alberta — which together contain well over half Canada's population — Mr. MacEachen is trying to force an enormously costly program. He does it, moreover, without having made any effort to determine what other needs the provinces will have to meet, and at a time when the whole subject of provincial and federal responsibilities and revenues awaits review and change.

The Carter Royal Commission on Taxation has yet to report, so has the Ontario Committee on Taxation. The Belanger Royal Commission on Quebec Taxation found provincial tax resources inadequate to provincial needs. It is virtually certain that the other two reports will discover the same thing, for it is provincial responsibilities and costs — especially in education — that are rising astronomically. Yet Mr. MacEachen did not wait for these reports, which will reshape Canada's whole fiscal future. Instead he has told the provinces: you will come in on my terms or get no help from Ottawa, you will pay for a program you may or may not be able to afford, and if you stay out you will still pay for those who come in.

It is a situation calculated to raise provincial hackles and to strengthen Mr. Robarts' hand when he goes to the federal-provincial conference this fall. With the Ontario Medical Services Insurance Plan, he has already met the first moral requirements of medicare by providing free or subsidized care for low-income and high-risk groups. Nobody in Ontario will be without medical services because he cannot afford them. Universal medicare remains a desirable objective, but many other programs are also desirable and they cannot all be achieved at once. Some, indeed, may not be achieved at all unless our investment in education is sufficient to increase our productivity enough to pay for them.

Medicare is not yet legislation. It should not become so until the taxation studies have shown exactly what costs the provinces face and what resources they are going to have to meet them. One cannot help feeling that Mr. MacEachen is trying to force medicare through because he fears what these studies will reveal. There should be some very tough talk from the dissenting provinces at the autumn conference.

Toronto Globe and Mail, July 14, 1966. Reprinted by permission.

La carrière de dentiste

Si nous voulons assurer le progrès de notre profession il faut attirer dans nos facultés dentaires un plus grand nombre d'étudiants. Il faut aussi chercher à y attirer les candidats les plus intéressants et les plus intelligents. La chose n'est pas facile car un grand nombre de carrières aussi attirantes les unes que les autres s'offrent à l'étudiant.

Les associations dentaires nationale, provinciale, et locale, s'intéressent toutes au problème du recrutement. Il semble cependant que l'efficacité de la publicité faite grâce à tous les médiums de communications modernes soit limitée. C'est dans le bureau de leur dentiste de famille que les jeunes apprennent à connaître ce qu'est la carrière de dentiste et ce sont les dentistes eux-mêmes qui sont les agents de recrutement les plus efficaces.

Si c'est à nous qu'il revient d'intéresser les jeunes à notre profession, il n'est peut-être pas inutile de réfléchir quelques instants sur ce qu'est devenue la carrière de dentiste car les choses ont évolué à un rythme accéléré depuis 10 ou 15 ans.

L'omnipraticien qui commence à travailler en 1966 a des responsabilités beaucoup plus étendues que celles que rencontrait son confrère plus âgé il y a plusieurs années. Les campagnes d'éducation en hygiène dentaire ayant fait leur œuvre, le nouveau praticien est appelé à faire beaucoup plus de traitements de gencives, de traitements de canaux et de restaurations extensives. Il se préoccupe de traiter l'ensemble de la bouche du patient et montre une plus grande préoccupation pour la prévention. Cette complexité accrue ne manque pas de rendre son travail intéressant.

Le jeune homme qui désire devenir dentiste peut aussi envisager la possibilité de devenir spécialiste. Pour cela il lui faudra acquérir un bagage de connaissances additionnelles qui saura certainement passionner un esprit jeune et curieux. Son travail sera constructif, intéressant et ne risque pas de tomber dans la routine. Il peut envisager la pratique hospitalière qui prendra certainement une expansion considérable dans les années à venir.

Cependant, le DDS ne donne pas accès uniquement à la clinique; il ouvre aussi les portes sur des carrières scientifiques. Combien d'entre nous réalisent pleinement que le doctorat en chirurgie dentaire peut servir de point de départ à une carrière en science pure. Bon nombre de dentistes ont pourtant poursuivi leurs études et obtenu une maîtrise en sciences ou un PhD. Ceux qu'intéresse une carrière scientifique et qui choisissent d'y accéder par la chirurgie dentaire pourront trouver un emploi dans l'industrie ou dans les facultés dentaires. Les conditions de travail et de salaire s'y sont améliorées suffisamment pour ne plus détourner les jeunes de l'enseignement et de la recherche.

La profession dentaire évolue très rapidement; il nous faut chercher à comprendre ce qu'elle devient de façon à la faire connaître aux jeunes qui nous visitent quotidiennement. La profession dentaire moderne présente un défi qui est digne des plus grands esprits.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

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Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

Comment on Dr. Bourne's Request for Help

To the Editor:

I was interested to read the queries by Dr. C. C. Bourne in the May issue of the Journal.

As a dental historian, who has devoted very many years to both studying and collecting early books and pamphlets relating to our profession, I would mention that I have no knowledge of S. C. Parsons who is said to be the author of "An Essay on the Disorders and Treatment of the Teeth," published at York in 1830. There was, however, a certain E. Parsons who published "Conversations on the Teeth..." at Savannah in 1879. I have no knowledge either of "Traité de dents saines" said to have been written by John R. Spooner in 1836. This practitioner trained his younger brother, Shearjashub,

who published "A Guide to Sound Teeth..." in New York in 1836 (second edition, 1838).

Further, L. Lemerle, "Notice sur l'Histoire d'Art," Paris, 1900, should obviously read: L. Lemerle, Notice sur l'Histoire de l'Art dentaire, Paris, 1900.

My fundamental object in drawing attention to these points is to obviate your readers accepting any bibliographic statements without verification, and thus risking the perpetuation of errors.

J. Menzies Campbell, DDS, FDS,
70 Great George St., Glasgow, W.2, Scotland

Dr. Campbell's observation regarding author Lemerle's work is quite correct. Further correspondence with Dr. G. Didier of the Musée d'Art Dentaire of the Ecole Odontologique de Paris suggests that Lemerle's book was largely a translation of an earlier German work, Geschichte der Zahnheilkunde, by Geist-Jacobi, Tiibingen, 1896. The only copy of S. C. Parson's book, An Essay on the Disorder and Treatment of the Teeth, reposes in the library of the University of Maryland Dental School. The Reference Division of the Toronto Public Library also has a microfilm copy of this work. (Ed.)

Death and In Memoriam Notices

To the Editor:

The method of recording the deaths of Canadian dentists recently employed by the Journal leaves much to be desired in my opinion.

Surely these members of the Association who have given their lives to the practice of dentistry deserve more space in the official publication of organized dentistry in Canada than name, age, residence, and assorted ciphers.

I trust that something can be done to improve this discrepancy.

E. M. Wansbrough, DDS,
174 Carling Ave., Ottawa, Ont.

We sympathize with Dr. Wansbrough's observations but feel that these must be weighed against the additional cost of publishing extended *In Memoriam* notices for all deceased CDA members. Financial considerations have compelled the *Journal* to effect economies in all aspects of editorial content, including the method of recording death notices. At first this was achieved by reducing the frequency of publishing such notices. This met with disapproval from one reader who wanted to have this information as soon as it became available. At the request of a corporate member, the Council on Journalism thereupon sanctioned the present system whereby abbreviated death notices giving the name and age of the deceased, his place of residence, his dental school and year of graduation, and the date of his death are published in every issue as soon as the information is received by the editorial department. In addition, more extensive appreciations of notable persons continue to appear in the *In Memoriam* section as space permits. (Ed.)

Upholds Bilingual Journal

To the Editor:

It is attitudes [cf. Wants 'English Only' Journal] such as that displayed by Dr. T. G. Parsons of New Westminster, BC, in his letter in the June issue of the *Journal* that are tending to break up this country.

G. A. Coombes, DDS,
4495 Sherbrooke St. W., Westmount, P. Que.

Réponse à "Wants 'English Only' Journal"

Au rédacteur:

La lettre du confrère T. G. Parsons publiée dans le *Journal de l'Association dentaire canadienne* (Vol. 32, no 6, 1966, p. 333) fournit une des réponses possibles à la question souvent posée par des Canadiens de langue anglaise: "Pourquoi la province de Québec songe-t-elle à se séparer du Canada?"

Gérard de Montigny, DDS,
C. P. 6128, Montréal, P. Québec

Control of Radiation Hazards

To the Editor:

Allow me to compliment you on your June issue of the *Journal*. It will no doubt expedite the evolution of improved and safer radiography. I was pleased to note the recommendations for employment of an open-end shielded cone in place of the non-protective

conventional plastic cone. This helps to control unnecessary exposure to both primary and secondary radiation, particularly insofar as the thyroid, thymus, and pituitary glands and the gonads of patient, operator and surrounding personnel are concerned. The suggestions regarding the use of the long cone paralleling technique and the recommendations for a lead apron are likewise commendable. I would add that exposure of pregnant women to radiation, except in very extenuating circumstances, should also be avoided.

With regard to the quantitative radiation measurements reported, the dosimeters utilized are of necessity small. Though they are an aid in comparative valuations, they do not portray the total amount of radiation emitted to the whole body of the patient, operator or surrounding personnel. Nor do they indicate the amount of tissue irradiated.

I would also like to comment about Dr. Eaton's remarks in connection with the long cone technique. Dr. Eaton observes that a target-film distance in excess of 16-20 inches would mean subjecting the patient to an undesirable amount of radiation. I respectfully submit that this does not have to be so, provided that the open-end long cone is shielded with at least the equivalent of 1/32 inch of lead.

I personally observe the following safety measures in my office:

1. Ultra-speed film.
2. Eight minute developing time at 70°F, permitting a reduction in exposure times.
3. Open-end shielded cone with a movable pointer and alloy projections to conform to the otherwise irregular outline of the patient. The alloy projections offer an additional two-thirds reduction of the remaining unnecessary radiation compared to an open-end shielded cone alone.
4. Twenty inch target-film distance.
5. Fully enclosed booth with leaded glass window. Floors, ceiling, door and walls are constructed of 1/8 inch lead sandwiched in steel. Within this booth I have my push-button about six feet from the x-ray machine.
6. Dr. Updegrave's Rinn X-C-P film holder and aligner.
7. An alloy film backing (6 per cent antimony and 94 per cent lead, 5/64 inch thick, the perimeter slightly smaller than the intra-oral film packet) to control the exit radiation dose.
8. A 2 inch square of the primary beam at the patient portal.

Biological effects will follow irradiation however small its amount, as has been stated in the Report of the United Nations Committee on the Effects of Atomic Radiation. Therefore it behooves us to utilize all practical precautions to control any unnecessary radiation.

Charles Okun, DDS,
1580 Eglinton Ave. W., Toronto, Ont.

Full coverage restoration of pulpless anterior and bicuspid teeth

Ralph Yuodelis,* DDS, MSD and Kenneth Morrison,† DDS, MSD, Seattle, Washington

Precast high-fusing precious metal dowels that match the size and taper of standardized reamers and files can be used for restoring pulpless anterior and bicuspid teeth requiring full coverage. This eliminates the necessity for long posts or posts that parallel the remainder of the preparation or other abutments. The risk of fracturing the root or the remainder of the crown is also greatly reduced.

■

Les auteurs recommandent l'emploi de pivots pré-fabriqués en métaux précieux de grosseurs et de formes standards correspondant à des limes et à des forets. Ainsi il n'est plus nécessaire d'employer de pivots qui soient très longs ou qui soient parallèles à la préparation ou aux autres piles. On peut ainsi réduire les risques de fractures.

The restoration of devitalized teeth is rarely simple and can present numerous problems. In cases where a considerable portion of the crown has been lost

through caries or trauma, difficulties are likely to multiply. This type of defect in cuspids and incisors usually calls for full coverage. But this in itself does not eliminate the difficulties, and the dentist must always be prepared to give full consideration to alternative types of restoration.

The difficulties most frequently encountered when restoring devitalized teeth can be identified as follows: (1) It may be difficult to remove sufficient root canal filling to permit the reception of a long post. (2) If the canal is properly cleared it may be difficult to fit a post to this canal and also make it parallel the remainder of the preparation or other abutments. (3) The foregoing problems increase the danger of fracturing the root or the remainder of the crown.

A full or partial foundation coping that is cemented independently of the final restoration eliminates many of these disadvantages. Such a coping permits the tooth to serve as a basis for any type of restoration. It has a decided advantage where parallelism would present difficulties as in full-mouth reconstruction or where the tooth will be utilized as an abutment.

Recent standardization of root canal instrument taper and size has led to the

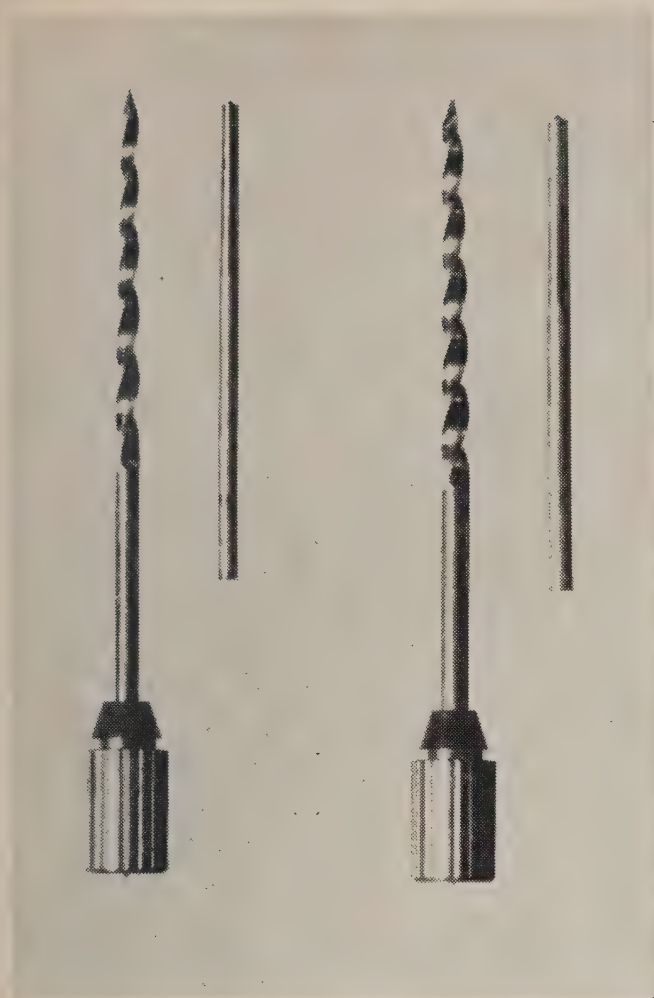


FIGURE 1 Standardized gold-platinum alloy dowel with matching reamers.

introduction of a precast high-fusing precious metal dowel (Kerr's Endo-Post) that matches the size and taper of the standardized reamers and files (Figure 1).¹ These posts greatly facilitate the restorative phase of the treatment. This method has been used successfully at the University of Washington's fixed partial dentures department for approximately two years. The basic steps in the sequence of treatment are as follows: endodontic treatment, coronal reduction, dowel hole preparation, fitting the prefabricated dowel, impression of the prepared tooth and working model, and fabrication of the foundation coping by the indirect method or direct indirect method.

INSTRUMENTATION

Endodontic Treatment. — Normal endodontic procedures are used in clearing and enlarging the canal. A silver point, if

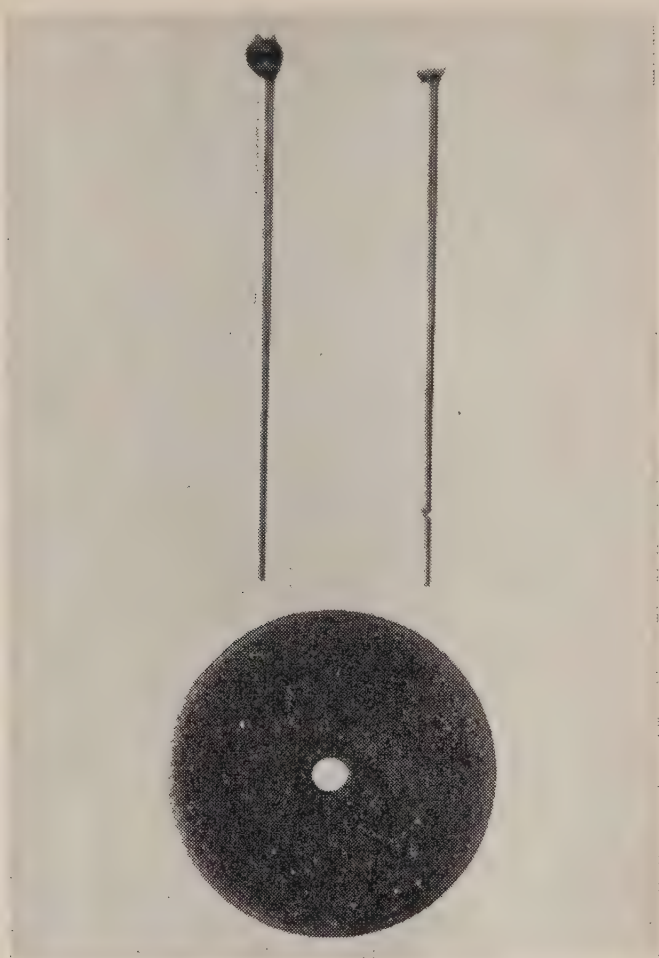


FIGURE 2 Unnotched silver point and one that has been circumferentially notched with a separating disk at its apical third.

used to seal the apex, is circumferentially notched at its apical third (Figure 2). After cementation the silver point is twisted with a slight apical pressure until it breaks where notched. Gutta percha points may be used to seal the apex in place of silver points.

Coronal Reduction.—Every effort is made to gain maximum retention from the remaining coronal portion of the crown. The manner of reduction is the same as for a vital tooth save for the following exceptions.

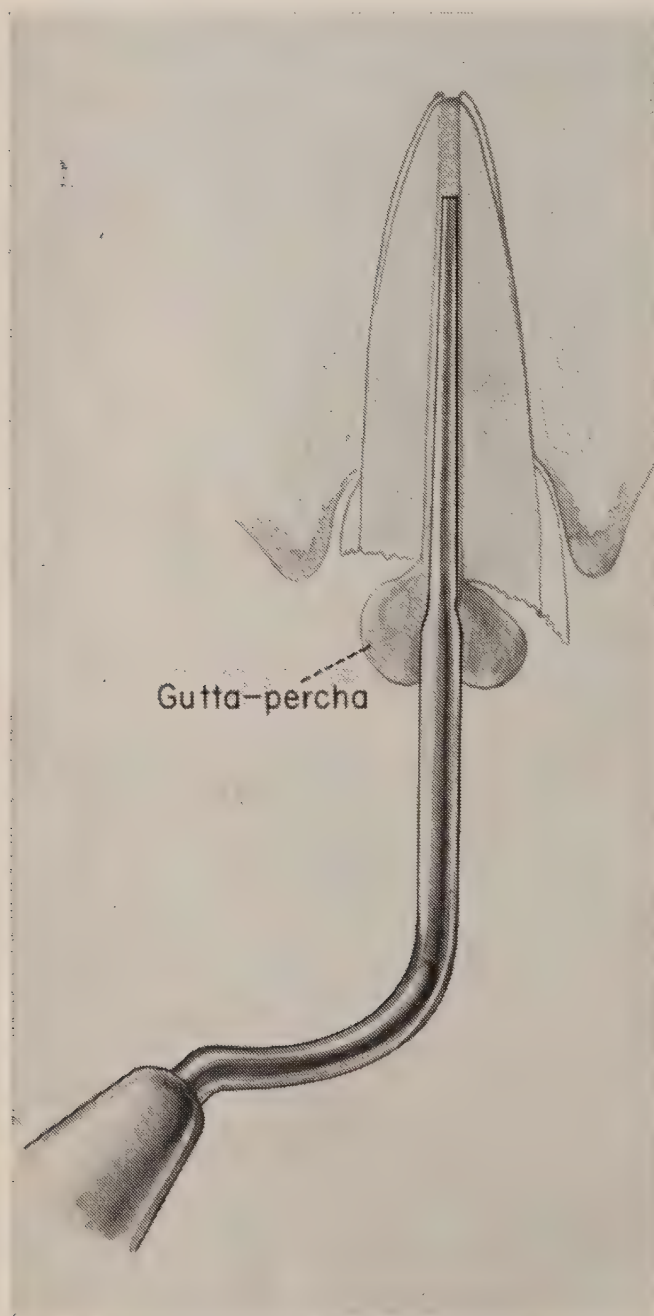
1. If but a meagre portion of the coronal part of the tooth remains, the walls are prepared with minimal convergence. The gingival margin is located so as to allow an apron of gold to encircle the entire tooth. Addition of this apron increases retention and reduces the risk of root fracture. The margin may be located farther subgingivally than usually is necessary as long as it does not encroach

upon or injure the gingival attachment.

2. If the tooth has been fractured below the level of the gingival attachment, more of the clinical crown may have to be exposed by osseous reshaping and/or gingivectomy. Retention may then have to depend entirely on the dowel.

Although conservation of coronal tooth structure is desirable, it is equally important to remove sufficient tooth structure. There must be adequate space for the porcelain or acrylic veneer, thereby eliminating the possibility of overcontouring or poor colour.

Preparation for Dowel. — Retention depends mainly on the length of the dowel.



Therefore, the preparation for this dowel is made as long as possible and will depend on the length and shape of the root. In general, the minimum extension of the dowel into the root should equal the length of the crown.

Certain precautions must be observed during preparation for reception of the dowel. A bur should not be used to clear and enlarge the canal unless it is necessary to remove a length of previously cemented silver point. Here, care must be taken to avoid lateral perforation since the harder root canal filling tends to divert the bur into the softer tooth structure. A bur may also dislodge the apical portion of the silver point. It is therefore often easier to remove the entire silver point under aseptic conditions with a Hedstroem file. If the retrieved point is satisfactory it may be notched as previously described (Figure 2) and re-cemented.

If the canal has been sealed with gutta percha, sufficient material must be removed to allow for the dowel. This may be done as follows: If the gutta percha has been recently placed, the heated end of a Kerr's pulp canal plugger of proper size (8,9,10 or 12) is inserted slowly into the canal.² The softened gutta percha is then expressed from the canal's orifice. This is repeated until the desired length of the canal is cleared (Figure 3). Gutta percha that has been in place for a lengthy period becomes hard and brittle thus making the use of the pulp canal pluggers ineffective. In that event a heated reamer or file is used to remove gutta percha to the necessary depth.

If the apex has been sealed with a silver point, the canal need only be enlarged.

The canal is enlarged with standardized files or reamers for the reception of the dowel. As little tooth structure as is necessary is removed. The width of the root canal determines how much the canal should be enlarged. Instruments in sizes No. 70, 80, 90, 100 and 110 may be used

FIGURE 3 Cross-sectional illustration showing a method of clearing a gutta percha filled root canal to a desired length by the use of a heated root canal plugger.

since the prefabricated dowels are available in the same sizes.

Fitting the Prefabricated Dowel.—A prefabricated dowel is selected for the canal. It will match in size and taper the standardized files and reamers of the same numbers. Thus, if the canal is enlarged to accommodate a No. 90 file or reamer, a No. 90 dowel will fit the canal precisely. The dowel is tested for fit (Figure 4).

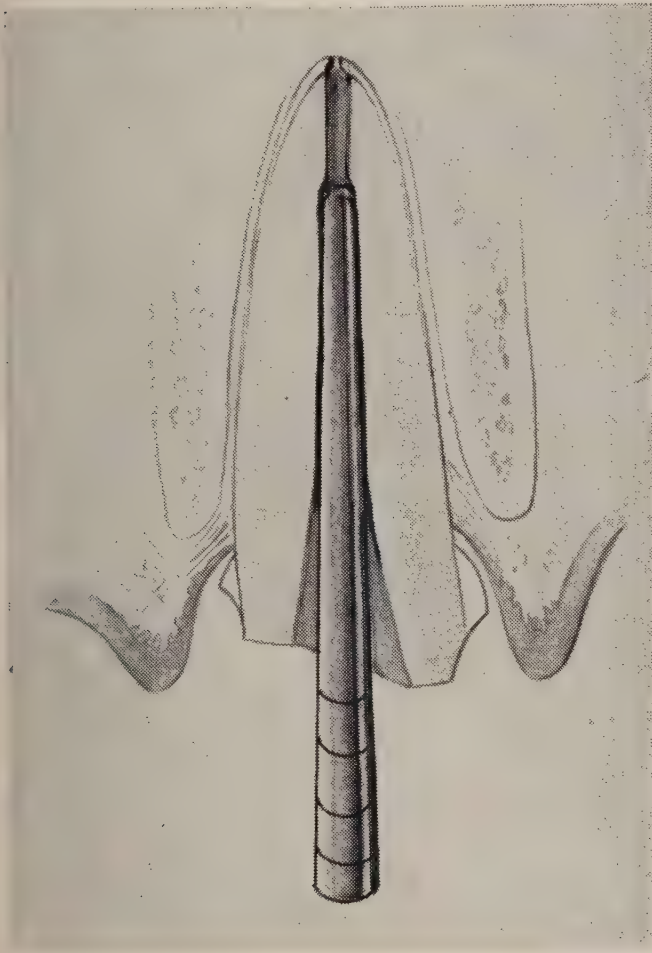


FIGURE 4 Cross-sectional illustration showing the prefabricated dowel being tested for fit.

Impression of Preparation and Construction of Working Model.—Rubber base impression material may be used. Gingival retraction is accomplished and a custom-made acrylic tray is tested for proper fit. The tray is adjusted if the protruding dowel interferes. The serrated end of the dowel is painted with rubber adhesive and then inserted into the canal. The impression is taken in the usual manner. Since impression material is not in-

jected into the canal prior to insertion of the dowel, the latter is removed from the canal as the impression is withdrawn.

The impression is boxed and the root end of the dowel lubricated with a separating medium. A pin is passed through the wax, marking the position of the dowel. Die stone is vibrated to a level that covers the dowel and a die dowel is positioned slightly over it (Figure 5).

The stone is allowed to set, the pin is removed, the dowel and surface of the stone cast are lubricated and the remainder of the impression is poured in stone. After setting, the die is removed and trimmed in the usual manner (Figure 6). The saw cuts are placed so that they avoid both the dowel pin for the die and the prefabricated dowel.

Fabrication of the Foundation Coping.—A full coping with a circumferential apron of gold is indicated where most of the crown has been lost. The wax collar must be kept to a minimum on the labial or buccal aspects in order to avoid unnecessary display of gold (Figure 7). Interproximally and lingually this collar may be waxed slightly coronal to the gingival tissues. The proximal walls of the wax pattern should converge slightly. The gingival 1-2 mm. of the buccal and lingual walls can be almost parallel. The dimensions of the wax pattern should allow for a normally contoured final crown.

A variation of this coping can be used when a substantial portion of the crown remains. This involves using the prefabricated dowel to support an extension of the coronal portion of the preparation (Figure 8). The dowel extension may be waxed indirectly or directly.

1. Indirect Method.—Before any wax is applied, the dowel is removed from the die and the adhesive cleaned from the serrated end with acetone or xylol. The stone die is lubricated and the dowel is inserted making certain that it is completely seated. The desired type of extension to the dowel is waxed. To facilitate removal from the die, the serrated

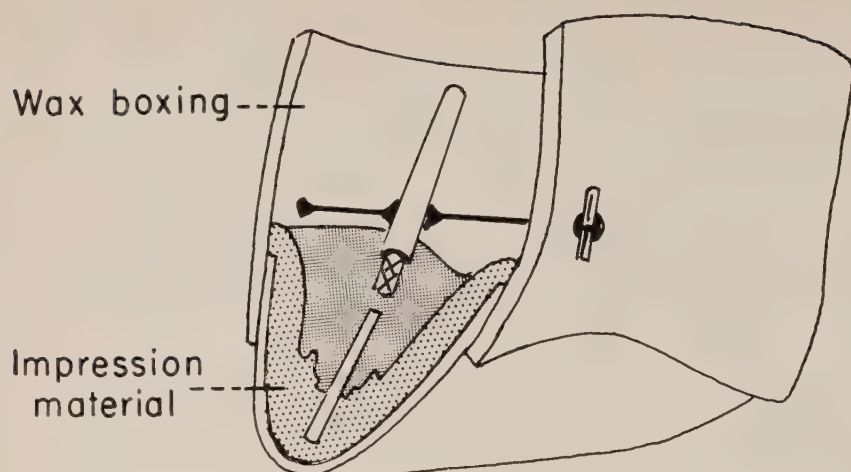


FIGURE 5 Cross-sectional view of boxed impression prepared for casting in stone.

end is not yet reduced even though it may be too long (Figures 7 and 8). It can be reduced after the coping has been cast. A non-oxidizing investment is used to assure a good bond between the different alloys. When cast, the ring is bench-cooled for proper heat treatment of the metal. The casting is then pickled, trimmed and checked carefully for any bubbles or discrepancies. If for any reason it fails to seat completely on the die, it is relieved by stripping. The fit of this casting can now be confirmed clinically.

Care must be exercised when fitting a coping with a long post. Forcing the casting may cause periodontic damage or root fracture during its insertion or subsequent removal. Further stripping may be necessary. The casting can then be re-

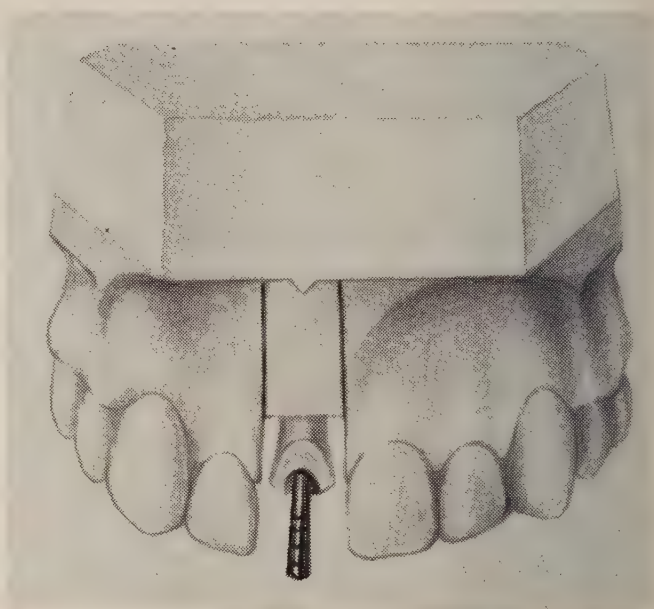


FIGURE 6 Working model with removable die.

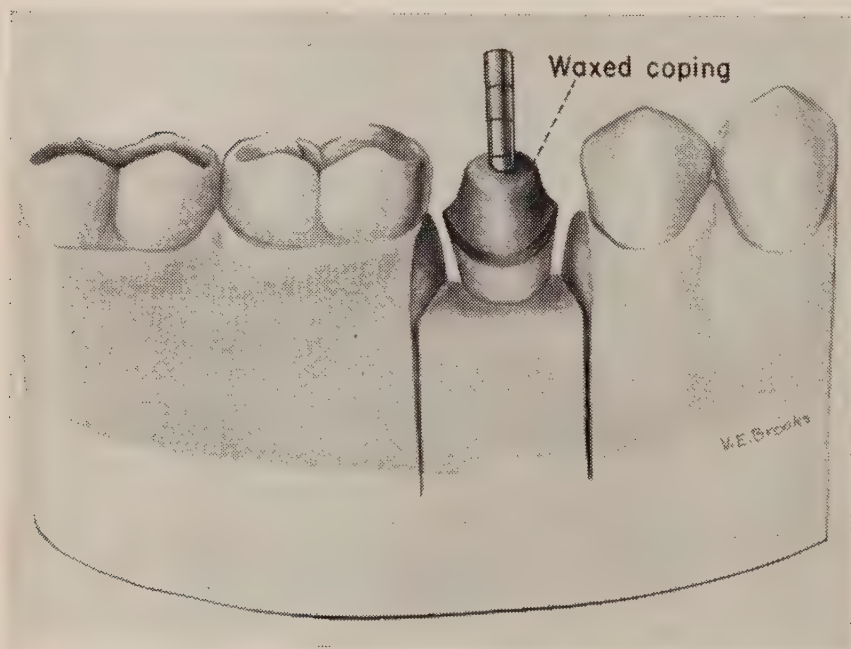


FIGURE 7 Full coping in wax.

turned to the model for completion of the restoration of choice.

If desired, the casting may be cemented permanently at this time and another impression taken for subsequent completion of the final restoration.

2. Direct Indirect Method.—This method is used if a full coping as in Figure 7 is unnecessary and only a dowel extension as in Figure 8 is required. The extension of the coronal portion of the preparation is waxed to the inserted dowel directly in the mouth. The extension can be built up to simulate a typical preparation and to allow for sufficient clearance in various excursions. This is then cast and set permanently at a subsequent appointment. After cementation the preparation may be modified if necessary and a final impression for a working model taken. The crown of choice can be completed indirectly.

The tooth should be protected between appointments so that temporary cement will not enter the dowel hole. This is done by shaping a wooden dowel from a match stick, inserting it into the canal and fabricating a temporary acrylic crown. The margins of this temporary crown are painted with a small amount of temporary cement and the crown is set. If a temporary restoration is not required, the dowel hole is filled with cotton and the orifice sealed with temporary stopping.



FIGURE 8 Direct waxing of an extension of the coronal portion of the preparation.

SUMMARY

A method of restoring pulpless anterior and bicuspid teeth requiring full coverage is described. This method employs a pre-cast high-fusing precious metal dowel that matches the size and taper of standardized reamers and files. The procedure outlined eliminates many of the difficulties that are often encountered while restoring such teeth.

Presented at the meeting of the University of Washington, School of Dentistry Alumni Association, September 17, 1965.

*Assistant professor, Department of Fixed Partial Dentures, University of Washington.

†Professor and chairman, Department of Fixed Partial Dentures, University of Washington.

1. Gerstein, Harold and Burnell, S. C. Prefabricated precision dowels. *J.A.D.A.* 68:787, 1964.

2. Beveridge, E. E. Personal communication, 1965.

University of Washington

Further experience with triamcinolone-demethylchlortetracycline for conservative endodontic treatment

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Further encouraging results are reported from endodontic treatment of 722 teeth with a triamcinolone-demethylchlortetracycline preparation. The material was used for treatment of hyperaemia, pulpitis and apical periodontitis. In four instances the clinical results were confirmed by microscopic examination.

■

L'auteur continue d'obtenir des résultats satisfaisants à la suite de l'emploi de la triamcinolone-déméthylchlortétracycline dans les traitements d'endodontie. On a employé ce matériel dans 722 dents pour traiter de l'hyperémie de la pulpite et des périodontites apicales. Dans quatre cas, on a pu vérifier microscopiquement les résultats cliniques.

Preliminary clinical results of conservative pulp therapy with a corticoid-antibiotic preparation in 370 patients have been reported previously.¹ The material used was a triamcinolone-demethylchlortetracycline preparation known as Ledermix Dental Compound (American Cyanamid Company). This is supplied as three separate units: a 3 Gm. tube of paste, a 2 Gm. bottle of powder, and a 5 ml. dropper bottle of hardener (catalyst). Ledermix paste contains triamcinolone acetate (1 per cent) and demethylchlortetracycline (3 per cent) in a water-soluble cream consisting of triethanolamine, cal-

cium chloride, zinc oxide, sodium sulphite, polyethylene glycol and distilled water. Ledermix powder is a cement containing 0.67 per cent triamcinolone acetate, 2 per cent demethylchlortetracycline, zinc oxide, Canada balsam, rosin and calcium hydroxide. The hardener for use with Ledermix powder is a solution of eugenol and rectified turpentine oil.

The initial clinical results were so encouraging that I decided to continue the assessment of this preparation in my practice. During this second phase of the investigation I was able to obtain some teeth for microscopic study after various intervals following treatment with Ledermix. This report updates the earlier clinical results and presents the additional microscopic findings. Data from the second phase of this study are shown on the left side of the tables in this report. Combined data from both phases appear on the right side in each instance. This facilitates comparisons and consolidates the combined data.

The present report concerns 352 patients: 132 males and 220 females. This brings the total number of patients treated to 722: 290 males and 432 females. The distribution of patients by age and by diagnosis is shown in Table 1.

The Ledermix was applied in the manner previously described.¹

The first phase of the study demonstrated that most patients who needed two or three applications of Ledermix paste for pain relief ultimately had to have the tooth extracted. These cases were thus considered as failures. Only

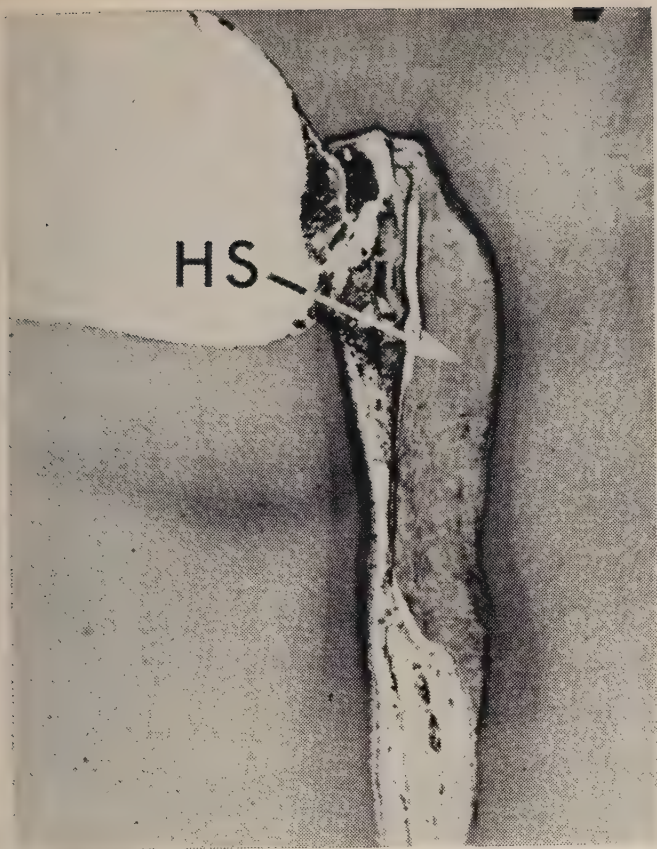


FIGURE 1 Lower incisor of an 80 year old woman treated for pulpitis after pulp exposure. The tooth was extracted three months after direct capping with Ledermix cement. There is no evidence of inflammation in the pulp. Note formation of hard substance (HS) underneath and opposite the exposure, the latter being considerably narrowed. Haematoxylin and eosin. X300.

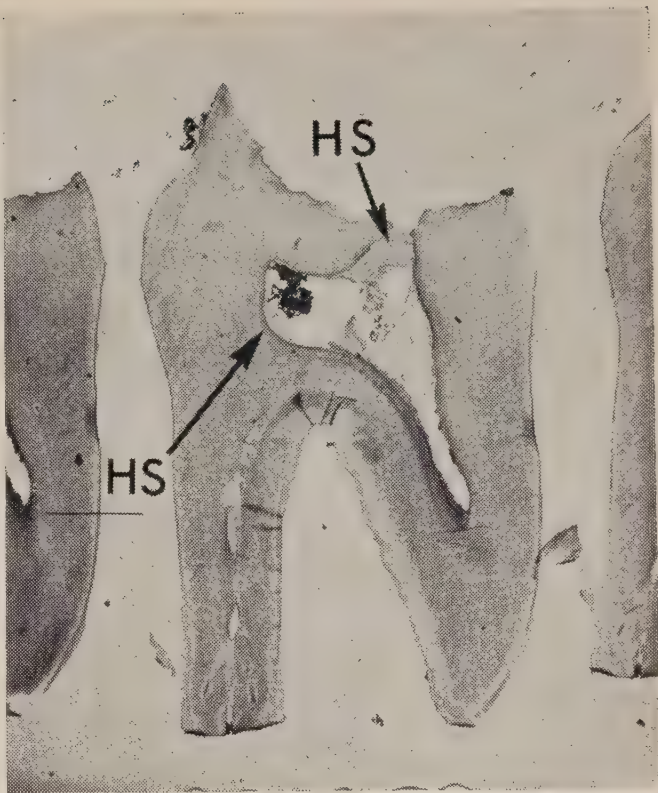


FIGURE 2 Upper third molar of a 28 year old man treated for partial pulpitis after pulp exposure. Ledermix paste was applied and direct capping with Ledermix cement was done seven days later. The tooth was extracted two months after completion of treatment. A pocket of chronic inflammation is present in the coronal pulp. The rest of the pulp is thinned out and there is absence of odontoblasts. Some newly formed hard substance (HS) is evident. Haematoxylin and eosin, malachite green. X12.

those patients who required a single application of the paste for pain relief in pulpitis were therefore evaluated in phase 2 of this study. Table 2 gives the details.

Only Ledermix cement was applied in cases of hyperaemia without pulp exposure. Where the pulp chamber was open, the paste was applied first, followed three

to seven days later by Ledermix cement, as indicated in Table 3.

All patients treated with Ledermix were instructed to return for follow-up examinations after completion of the treatment. Most patients returned and the results are summarized in Table 4.

Only 19 out of 500 teeth with hyper-

TABLE 1 Distribution of patients by age and diagnosis.

Phase 2					Phases 1 and 2 combined				
Age	No. of patients	No. of patients by diagnosis			Age	No. of patients	No. of patients by diagnosis		
		Hyperaemia	Pulpitis	Periodontitis			Hyperaemia	Pulpitis	Periodontitis
Under 10	10	1	8	1	Under 10	21	3	17	1
10-29	128	46	59	23	10-29	260	83	149	28
30-49	129	44	55	30	30-49	244	67	130	47
50-69	73	15	37	21	50-69	167	31	101	35
Over 70	12	3	6	3	Over 70	30	9	17	4
Total	352	109	165	78	Total	722	193	414	115

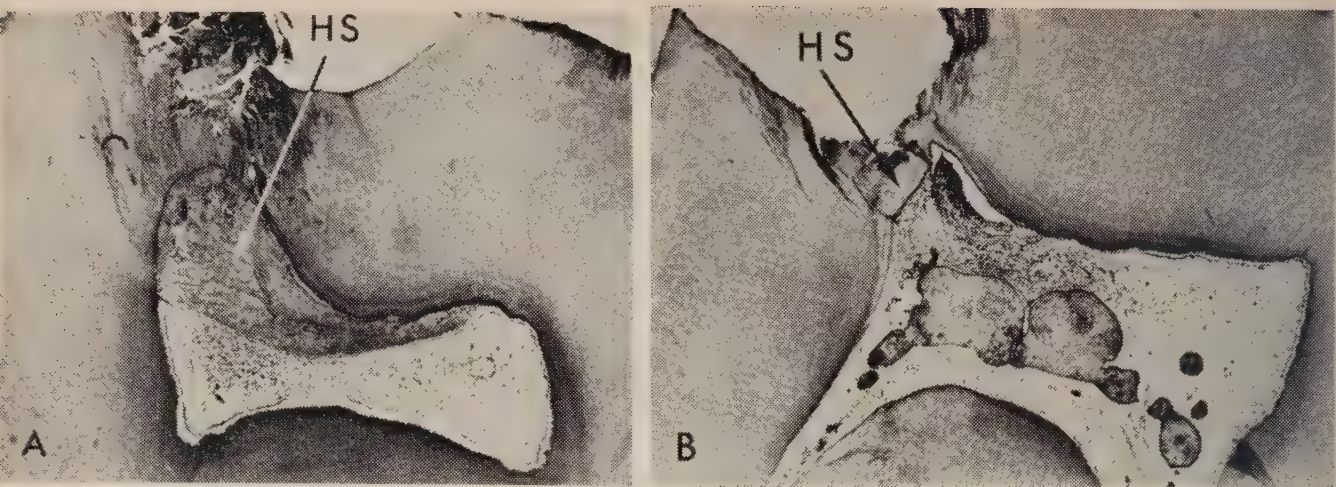


FIGURE 3 Two sections of a tooth from a 50 year old man treated for severe inflammation of the pulp. The pulp chamber was opened and application of Ledermix paste was followed by direct capping with Ledermix cement six days later. The tooth was extracted one year later after completion of treatment. The former exposure appears bridged in both sections by newly formed hard substance (HS) despite the now visible evidence of chronic inflammation. (A similar pattern may also be seen under indirect cappings.) This hard substance is solid in section A, but rather scarce in section B. Haematoxylin and eosin, malachite green. X70.

aemia or pulpitis, treated with Ledermix and followed for periods ranging from two to 48 months, were non-vital at the follow-up examination. Vitality was determined either with a vitalometer or by the application of ethyl chloride and half-melted gutta percha as previously described.¹ Correct clinical diagnosis is admittedly very difficult in these cases and does not correlate well with the microscopic appearance of the pulp.² Many of the failures must therefore be attributed

to injudicious choice of teeth for Ledermix treatment.

Seventy-eight teeth with periodontitis were treated with Ledermix during phase 2 of the study. The method employed has also been previously described.¹ Root canal therapy was accomplished for 90 per cent of these teeth. Only eight teeth were extracted when repeated applications of Ledermix paste failed to produce pain relief (Table 5).

Noteworthy is the fact that three pa-

TABLE 2 Results with Ledermix in pulpitis of variable duration.

Phase 1				Phases 1 and 2 combined			
Pain relief with Ledermix paste (clinical success)			Extraction (failure)	Pain relief with Ledermix paste (clinical success)			Extraction (failure)
No. of applications made	Onset of relief		No. of teeth	No. of applications made	Onset of relief		No. of teeth
	Time interval	No. of teeth			Time interval	No. of teeth	
One (165 teeth)	½ hr.	101	8*	One (392 teeth)	½ hr.	279	10*
	1-2 hr.	21			1-2 hr.	49	
	1 day	15			1 day	34	
	1-2 days	5			1-2 days	5	
	Unknown†	15			Unknown†	15	
				Two (16 teeth)	0-1 hr.	4	4
					1-3 days	8	
				Three (6 teeth)	1-3 days	3	3
Total (165 teeth)		157	8	Total (414 teeth)		397	17

*Includes one patient who did not return for two months after the paste was inserted. When he did return the pulp was purulent.
†These patients received conduction anaesthesia for the treatment; therefore the exact time interval could not be determined.

TABLE 3 Effect of Ledermix on pain in hyperaemia.

Phase 2				Phases 1 and 2 combined			
Status of Pain	Total no. of teeth	Application of Ledermix		Status of pain	Total no. of teeth	Application of Ledermix	
		Paste and cement	Cement only			Paste and cement	Cement only
Not previously present	18	3*	15	Not previously present	35	14*	21
Complete relief within 2 hrs.	28	7	21	Complete relief within 2 hrs.	45	21	24
Complete relief in 2 to 24 hrs.	51	6	45	Complete relief in 2 to 24 hrs.	101	38	63
Complete relief in over 24 hrs.	12	7	5	Complete relief in over 24 hrs.	12	7	5
Total	109	23	86	Total	193	80	113

*One patient did not return for the application of cement.

TABLE 4 Interval between last Ledermix treatment and follow-up examination in hyperaemia and pulpitis.

Phase 2					Phases 1 and 2 combined				
Interval in months	No. of teeth examined on follow-up and found to be vital*				Interval in months	No. of teeth examined on follow-up and found to be vital†			
	Hyperaemia		Pulpitis			Hyperaemia		Pulpitis	
	No.	%	No.	%		No.	%	No.	%
2- 5	46‡	47	57§	36	2- 5	70‡	40	124¶	32
6-11	39	40	76•	49	6-11	75	43	183•	48
12-15	11	11	17	11	12-15	22	12	52	14
16-25	2	2	3	2	16-25	8	5	18	5
26-36	0	0	0	0	26-36	0	0	0	0
37-48	0	0	3	2	37-48	0	0	3	1
Total	98	100	156	100	Total	175	100	380	100

*Follow-up was not done for 20 teeth.

†Follow-up was not done for 55 teeth.

‡Four teeth were non-vital at follow-up examination.

§Nine teeth were non-vital at follow-up examination.

¶Twelve teeth were non-vital at follow-up examination.

•Three teeth were non-vital at follow-up examination.

TABLE 5 Results with Ledermix paste in periodontitis.

Phase 2				Phases 1 and 2 combined			
No. of applications needed before root canal filling	Total no. of teeth	No. of teeth treated by		No. of applications needed before root canal filling	Total no. of teeth	No. of teeth treated by	
		Root canal filling	Extraction			Root canal filling	Extraction
1	1	1	0	1	3	3	0
2	7	7	0	2	34	32	2
3	39	34	5	3	47	41	6
4	30	27	3	4	30	27	3
5	1	1	0	5	1	1	0
Total	78	70	8	Total	115	104	11

TABLE 6 Interval between filling of root canal (preceded by Ledermix treatment) and follow-up examination in periodontitis.

Phase 1		Phases 1 and 2 combined	
Interval in months	No. of teeth	Interval in months	No. of teeth*
1-5	29	1-5	41
6-9	19	6-9	28
10-14	16	10-14	27
15-24	5	15-24	5
25-36	1	25-36	1
Total	70	Total	102

*Follow-up of two teeth was not done. The extracted teeth are not included in this table.

tients with periodontitis had respectively received Ledermix treatment of the same tooth 24, 17, and six months previously. I attribute the subsequent periodontitis and root canal therapy to my inability to make a correct initial diagnosis rather than to the qualities of the Ledermix preparation. Teeth treated for periodontitis were kept under observation for periods of one to 36 months. All of the teeth

were in satisfactory condition at the final follow-up examination. The time intervals are shown in Table 6.

MICROSCOPIC FINDINGS

Persistent pain was regarded as evidence of a failure to respond to Ledermix treatment. Teeth that required further root canal therapy or extraction were similarly classified as failures. Microscopic examination of such teeth would no doubt confirm the clinical findings. Therefore it seemed more important that teeth with a good clinical response to the corticoid-antibiotic preparation be subjected to microscopic assessment. Several such teeth that were painless and vital were accordingly extracted and prepared for microscopic evaluation. The results are shown in Figures 1-4.

SUMMARY

A total of 722 teeth have now been endodontically treated with a triamcino-lone-demethylchlortetracycline preparation (Ledermix Dental Compound). Microscopic findings appear to confirm the encouraging clinical results obtained.

1. Olsen, Paul. Clinical experience with a corticoid-antibiotic preparation in conservative treatment of the pulp. J. Canad. D.A. 30:771, 1964.
2. Lawson, B. F. and Mitchell, D. F. Pharmacologic treatment of painful pulpitis. A preliminary, controlled, double-blind study. Oral Surg., Oral Med. & Oral Path. 17:47, 1964.

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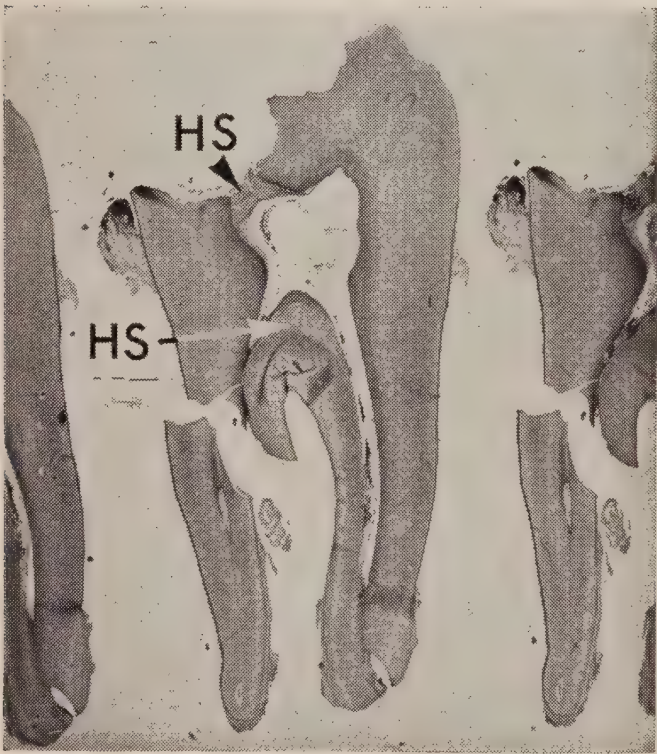


FIGURE 4 Pulp of a 27 year old woman exposed during treatment for partial pulpitis. Application of Ledermix paste was followed by direct capping with Ledermix cement six days later. The tooth was extracted three years after completion of treatment. Note newly formed hard substance (HS) closing off the exposure. The pulp is thin and contains a cystic area. There is no evidence of inflammation. Haematoxylin and eosin, malachite green. X12.

Contrôles histopathologiques du coiffage pulpaire direct à la triamcinolone- déméthylchlortétracycline sur dents humaines

Clinical and histological response of human pulp to direct application of triamcinolone- demethylchlortetracycline

*"Would you
be able to
do it?"*

Trente pulpes présentant des douleurs spontanées et 10 pulpes sans signe clinique, chez des patients âgés de 13 à 40 ans, ont été coiffées directement à la pâte et au ciment triamcinolone-déméthylchlortétracycline afin d'étudier le mode d'action de ce médicament sur le tissu pulpaire.

Malgré les résultats cliniques encourageants l'évidence histologique nous contraint de continuer à proscrire ce matériel en tant que médicament pour le traitement vital de la pulpe et de préciser les indications de la corticothérapie en endodontie.

■

Thirty pulps with a history of spontaneous pain and 10 pulps of intact teeth of patients aged 13-40 years were mechanically exposed and directly capped with triamcinolone-demethylchlortetracycline (Ledermix Dental Compound) paste and cement. The principal clinical response was a complete remission of symptoms in all teeth that had previously been painful. After extraction following post-operative periods varying from 38 to 156 days, the pulps were microscopically examined. There was evidence of an arrestment of dentinogenesis at the site of pulp expo-

sure. Serial sections showed that 'bridging' never occurred, even when Ledermix cement alone was applied. Irreversible metaplastic changes of the pulp tissue were observed at the site of contact and extending to variable depths. These changes comprised atrophy of fibroblasts and odontoblasts and disappearance of Von Korff's argyrophil fibrils. Signs of residual chronic inflammation became more prominent as the postoperative period lengthened. This suggests a gradual diminution of the antiphlogistic and anti-inflammatory effects of the material. These results are in accord with previous observations made of other corticosteroid containing compounds. Ledermix, however, appears to induce reactions that are more localized and less severe. Nevertheless, corticosteroid containing compounds are contra-indicated for direct pulp capping and medication of pulpitis in permanent teeth. In the present state of our knowledge the use of these agents should be restricted to capping deciduous pulps, temporary relief of painful pulps in permanent teeth intended for extraction, and root canal medication when pulp necrosis is accompanied by periapical complications.

TABLEAU 1 Arrangement expérimental.

N°	Préparations*	Nombre de dents cliniquement contrôlées	Nombre de dents histologiquement contrôlées
1.	Ultracortène H alcalin (prednisolone) 2.5 Gm et chloramphenicol (Ciba) 28 Gm	85 (31)*	63
2.	Schroeder-Triadan: triamcinolone 0.315 Gm; chloramphenicol 28 Gm; solution de lidocaïne 4%, 4 gouttes; excipient 1.5	25 (10)*	23
3.	Millicortène (dexaméthasone) 25 Gm; chloramphenicol 28 Gm et méthocel à 100 Gm (Ciba)	25 (15)*	21
4.	Millicortène 25 Gm; chloramphénicol; méthocel et Pulpdent (hydroxyde de calcium)	29 (10)*	28
5.	Ledermix I pâte (hydrosoluble) 30.21 mg déméthylchlortétracycline-calcium; 10 mg triamcinolone acetonide dans 1 Gm de pâte. Ledermix II ciment poudre: 20 mg déméthylchlortétracycline hydrochloride; 6 mg triamcinolone acetonide dans 1 Gm d'hydroxyde de calcium de la substance de support	10 (10)*	10 en préparation
6.	Millicortène 25 Gm	7 (—)	7
7.	Chloramphenicol 28 Gm	6 (—)	6
Total		187 (76)*	158 dents

*Après pulpotomie partielle à la fraise ronde dans des conditions de stricte asepsie, les médicaments Nos 2 et 5 ont été appliqués selon les prescriptions, les autres par insufflation. Après avoir enlevé l'excès du médicament sur les bords de la cavité, la fermeture hermétique de la plaie a été assurée par l'application d'une couche d'oxyde de zinc-eugénol (ZOE) et par une obturation métallique ou en ciment.
†Coupes en séries 6-8µ enrobées de paraffine, coloration H.E. de routine, Wilder-réticuline, Masson et Hale dans les cas de recherches.

La vitalité d'une pulpe lésée accidentellement ou même enflammée, surtout s'il s'agit de dents permanentes de sujets jeunes, mérite d'être sauvegardée pour plusieurs raisons.¹ En tant qu'organe producteur de dentine, la pulpe saine assure:

- (a) la formation de la racine et la diminution de l'espace pulpaire;
- (b) le rétrécissement des canalicules dentinaires par déposition de dentine péri-tubulaire;
- (c) la formation de dentine réactionnelle à l'endroit des irritations exogènes telles que l'abrasion, la préparation des cavités, la carie.

Witzel² tentait, en 1874 déjà, de guérir une pulpite débutante en recommandant l'amputation vitale. C'est en 1900 que Gysi³ publiait la première image histologique d'un abcès pulpaire en voie de guérison après coiffage indirect, établissant ainsi les bases scientifiques de cette thérapie. Après la découverte du Calxyl par Hermann,⁴ l'école de Zurich⁵⁻⁸ et celle de Bâle⁹⁻¹⁰ ont entrepris avec ce médicament le traitement des pulpes enflammées

par coiffage direct et par amputation vitale; mais les résultats furent peu concluants.

Les antibiotiques furent aussi employés mais leur action, ainsi que le reconnaît Castagnola,⁸ s'est révélée mal tolérée par le tissu pulpaire lors de l'application directe, en raison du pH bas de ce médicament.

Pendant ces dernières années, l'emploi de préparations à base de corticostéroïdes-antibiotiques, principalement la triamcinolone - déméthylchlortétracycline (le Ledermix, produit de la Compagnie Américaine Cyanamid), a été recommandé pour le traitement vital des pulpopathies. Plusieurs auteurs¹¹⁻¹⁷ ont rapporté des résultats cliniques spectaculaires après coiffage direct ou indirect au Ledermix. Depuis 1960, nous avons systématiquement contrôlé,¹⁸⁻²⁰ du point de vue clinique et histopathologique, l'action des différents mélanges de corticostéroïdes-antibiotiques, y compris le Ledermix, sur la pulpe humaine dénudée. Du fait que le Ledermix est commercialisé dans le monde entier,

sauf au Canada et aux Etats-Unis, nous avons poursuivi ces contrôles histopathologiques dans le but de préciser son emploi endodontique.

MATERIEL ET METHODES

Les premiers examens cliniques et histologiques¹⁸⁻¹⁹ ont porté sur 177 dents dont 150 présentaient une symptomatologie douloureuse. Différents mélanges corticostéroïdes-antibiotiques ont été employés (Tableau 1).

Entre-temps, nous avons poursuivi les contrôles histopathologiques avec le Ledermix en l'appliquant sur 30 pulpes présentant des douleurs spontanées ainsi que sur 10 pulpes sans signes cliniques. La période de contrôle postopératoire a varié entre 38 et 156 jours. Sur les dents avec carie profonde, ayant manifesté une symptomatologie douloureuse, après pulpotomie partielle à la fraise ronde dans des conditions de stricte asepsie, la pâte Ledermix a été appliquée sur la pulpe dénudée. La cavité a été ensuite remplie provisoirement d'oxyde de zinc-eugénol (ZOE). Après la rémission de la symptomatologie douloureuse, la cavité a été réouverte et la plaie pulpaire recouverte avec le ciment Ledermix. La fermeture hermétique a été assurée par une couche d'oxyde de zinc-engénol (ZOE), la cavité a été fermée par une obturation métallique ou un ciment type Kryptex ou Achatite.

Afin d'étudier, en l'absence d'inflammation, l'action du Ledermix sur le processus de réparation du tissu pulpaire, nous avons eu recours à l'expérimentation sur dents saines. Dix pulpes ont été dénudées dans des conditions d'asepsie et coiffées directement au ciment Ledermix. Chez les mêmes sujets, à titre de comparaison, quatre dents saines ont été coiffées à l'hydroxyde de calcium (Pulpdent) et examinées histologiquement après des intervalles postopératoires égaux à ceux observés après les coiffages au Ledermix.

Nous envisagerons séparément les résultats histopathologiques sur les pulpes saines et sur les pulpes douloureuses.

Après l'extraction, pour favoriser une pénétration rapide du fixateur, les dents ont été sectionnées partiellement au ni-

veau du collet, suivant un plan perpendiculaire à leur grand axe. La fixation a été réalisée dans le formol à 10 pour cent neutralisé,²¹ et la décalcification à froid dans la solution de Plank et Rychlo.²²

La coloration à l'hémalum-éosine a été utilisée pour l'étude de la morphologie générale.

Les trichromes de Masson, de Van Gieson, au bleu de méthyle de Mallory, ont été pratiqués pour mettre en évidence les fibres collagènes.

Les techniques d'imprégnation à l'argent, selon Wilder et selon Gomori, ont été employées pour déceler les structures argyrophiles.

RESULTATS

Contrôles cliniques.—L'application de la pâte Ledermix sur les pulpes présentant des douleurs spontanées se révèle cliniquement très efficace. Les symptômes pulpaires disparaissent en peu de temps, les contrôles de la vitalité restent positifs et l'examen radiographique ne montre pas d'altérations périapicales.

Après coiffage direct au ciment Ledermix sur les pulpes saines, aucune symptomatologie douloureuse ne se manifeste.

Contrôles histologiques sur la pulpe saine. — Dans aucune des pulpes coiffées directement au ciment Ledermix on ne peut observer la formation d'une barrière fibrodentinaire; il n'y a jamais de fermeture solide de la dénudation pulpaire. La radiographie d'une dent provenant d'un sujet de 13 ans (Figure 1 A) laisse supposer la néoformation d'une substance dure, radio-opaque, entre le ciment Ledermix et le tissu pulpaire. Or, l'examen histopathologique démontre qu'il ne s'agit pas d'un pont fibrodentinaire mais d'un amas de copeaux de dentine et de ciment poussés pendant l'opération de coiffage direct. Les figures 1 B, C et D montrent que cet amas n'adhère pas à la dentine pariétale et qu'il n'y a aucun signe de dentinogenèse active. A la suite de cette fermeture incomplète, on note la présence de quelques cellules inflammatoires dans la région du coiffage.

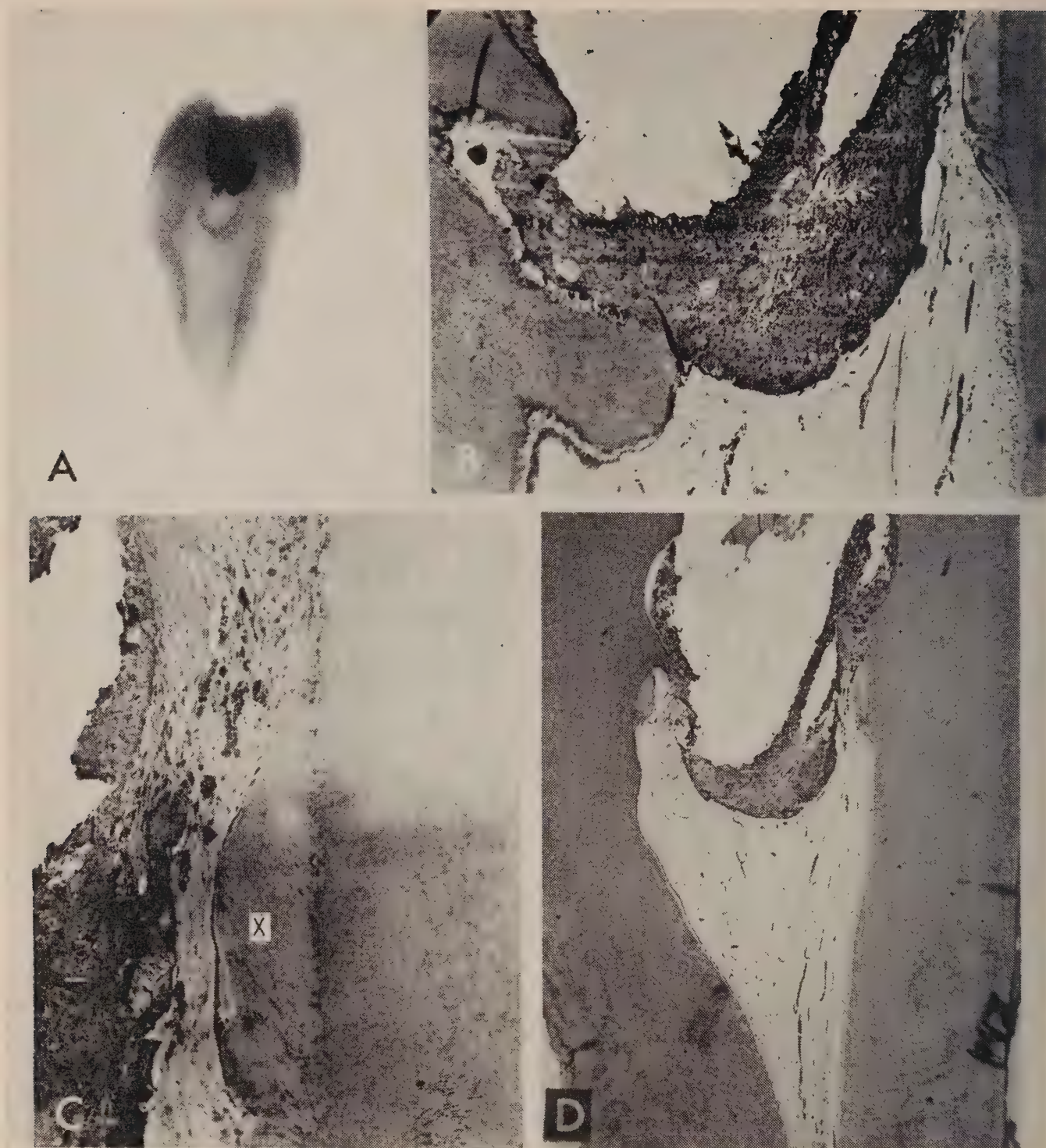


FIGURE 1 Ciment Ledermix; 5+ pulpe saine; garçon de 13 ans; 156 jours après coiffage direct. A, La radiographie laisse supposer la néoformation d'une barrière fibrodentinaire aboutissant à la fermeture de la brèche pulpaire. B, L'examen histologique montre qu'il ne s'agit pas d'un pont néoformé, mais plutôt d'un amas de copeaux dentinaires et de ciment. H.E. x 16. C, A fort grossissement, au voisinage de la dentine pariétale, on note une fermeture incomplète et quelques cellules inflammatoires. La dentine réactionnelle (x) au niveau du collet de la dent, a été formée avant le coiffage. H.E. x 180. D, Vue d'ensemble. La pulpe est hyperémiee et légèrement atrophiée. H.E. x 12.

FIGURE 2 Ciment Ledermix; 4+ pulpe saine; homme de 32 ans; 38 jours après coiffage direct. A, Un arrêt de la dentinogenèse est mis en évidence par l'absence de formation de substance dure qui devrait assurer la protection de la pulpe dénudée et par la disparition des fibres de von Korff au voisinage immédiat de l'exposition pulpaire. Wilder-réticuline x 180. B, L'absence des fibres de von Korff est aussi notée dans la région médiane du tissu pulpaire; seules les fibres collagènes sont présentes. Wilder-réticuline x 180.

FIGURE 3 Pâte hydroxyde de calcium; +4 pulpe saine; homme de 32 ans; 38 jours après coiffage direct. A, Le pont de dentine réactionnelle est en formation (x). Les fibres de von Korff sont présentes au voisinage de la zone coiffée directement. Wilder-réticuline x 180. B, On note les fibres argyrophiles hélicoïdales, le long de la pré-dentine pariétale, dans une région plus profonde de la pulpe. Wilder-réticuline x 180.



FIGURE 2

Légendes en p. 530

FIGURE 3

Sur une autre dent coiffée au Ledermix, on remarque également l'absence de formation de la substance dure qui devrait assurer la protection de la pulpe dénudée (Figure 2A). La disparition des fibres de von Korff le long de la prédentine pariétale indique l'arrêt de la dentinogénèse (Figure 2 A et B).

Sur une dent de contrôle provenant du même sujet et coiffée directement à l'hydroxyde de calcium, après le même intervalle postopératoire (38 jours) le pont de dentine réactionnelle est en formation (Figure 3A). Dans la région proche du coiffage, ainsi que dans la région plus profonde de la pulpe, on note la présence des fibres de von Korff argyrophiles (Figure 3 A et B).

Contrôles histologiques sur les pulpes douloureuses.—Le coiffage direct à la pâte Ledermix, suivi de l'application du ciment Ledermix — lorsque la symptomatologie douloureuse a disparu — donne des images histopathologiques comparables à celles déjà observées avec d'autres médicaments à base de corticostéroïdes et d'antibiotiques.

A la suite d'un tel traitement on observe régulièrement les altérations suivantes: (a) une métaplasie du tissu pulpaire; (b) une inhibition de la dentinogénèse; (c) une infiltration chronique plus ou moins intense, accompagnée de vasodilatation dans la région apicale.

(a) La métaplasie du parenchyme pulpaire se manifeste d'une part par un appauvrissement des éléments cellulaires (fibroblastes et odontoblastes) (Figure 4 A et B) et d'autre part par la disparition du réseau argyrophile (fibres de von Korff et réticulaires) (Figure 4D). Seules les fibres collagènes persistent. Dans quelques cas nous avons aussi noté des troubles circulatoires dans la région apicale (Figure 4C).

Cette métaplasie est toujours présente au voisinage de la zone d'application du Ledermix et souvent elle s'étend à des régions plus profondes de la pulpe.

(b) L'inhibition de la dentinogénèse se manifeste par l'arrêt de la formation de

la matrice prédentinaire à l'endroit de l'amputation d'une part et par l'absence d'un pont de dentine réparatrice d'autre part. La dentine réactionnelle formée avant l'intervention conduit souvent à des erreurs d'interprétation; en effet, elle peut être confondue avec un pont néoformé après l'amputation, surtout si les coupes n'ont pas été débitées suivant un plan parallèle à l'axe longitudinal de la dent et observées en série. Les figures 13 à 16 en sont l'exemple. La couche importante de dentine réactionnelle sur une coupe latérale (Figure 5A) pourrait faire entrevoir un 'bridging' après coiffage direct. D'autres coupes faites à des niveaux différents (Figures 5 B, C et D) indiquent pourtant que l'ouverture pulpaire a été faite à travers cette couche de dentine réactionnelle qui était formée avant le coiffage. Au niveau de la dénudation la pulpe est restée ouverte et même après 145 jours n'a pas formé de barrière fibrodentinaire. Dans la partie apicale de cette pulpe on note la présence d'une intense vasodilatation et une extravasation de fibrine (Figure 5 E).

Un autre signe reflétant l'effet inhibiteur du Ledermix dans l'élaboration de la barrière fibrodentinaire est le manque d'une matrice calcifiable entourant ces copeaux isolés de dentine, au voisinage du coiffage (Figures 4A, 6A et B).

(c) La présence de cellules inflammatoires chroniques localisées au voisinage du coiffage peut être observée dans presque tous les cas de pulpes douloureuses traitées au Ledermix. Cette infiltration résiduelle semble d'autant plus marquée que l'intervalle postopératoire est plus long (Figures 6A, 7 et 8). Des foyers d'inflammation de ce genre ne peuvent être décelés ni cliniquement, ni par la radiographie (Figures 9 A-C).

DISCUSSION

Les résultats du coiffage direct au Ledermix des pulpes avec et sans symptomatologie douloureuse doivent être évalués sous les trois aspects suivants: (a) les effets cliniques qui paraissent prometteurs; (b) les contrôles histopatho-

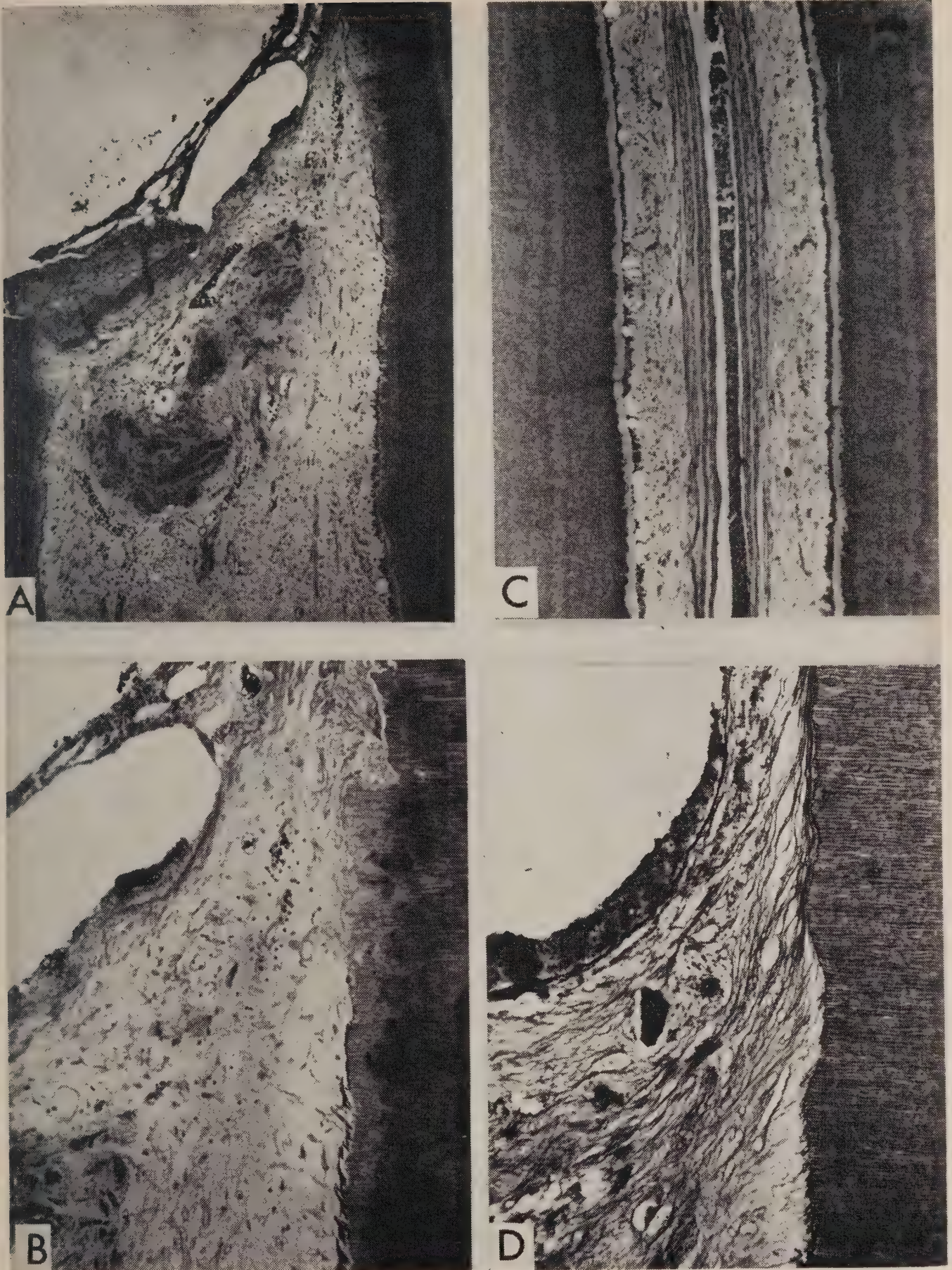


FIGURE 4 Pâte Ledermix (2 jours); ciment Ledermix (90 jours); +1 pulpe spontanément douloureuse; femme de 30 ans; 92 jours après coiffage direct. A, La vue d'ensemble de la région du coiffage montre l'absence de formation de substance dure; les copeaux de dentine ne sont pas entourés d'une matrice calcifiable. A proximité du coiffage on note une infiltration des cellules inflammatoires. H.E. x 16. B, L'atrophie cellulaire du tissu pulpaire, y compris les odontoblastes au voisinage de la région opérée est manifeste. Mallory x 80. C, La partie radiculaire de la pulpe montre une forte hyperémie. H.E. x 32. D, On observe la disparition du réseau argyrophile et seules des fibres collagènes brunes sont présentes. Gomori x 80.

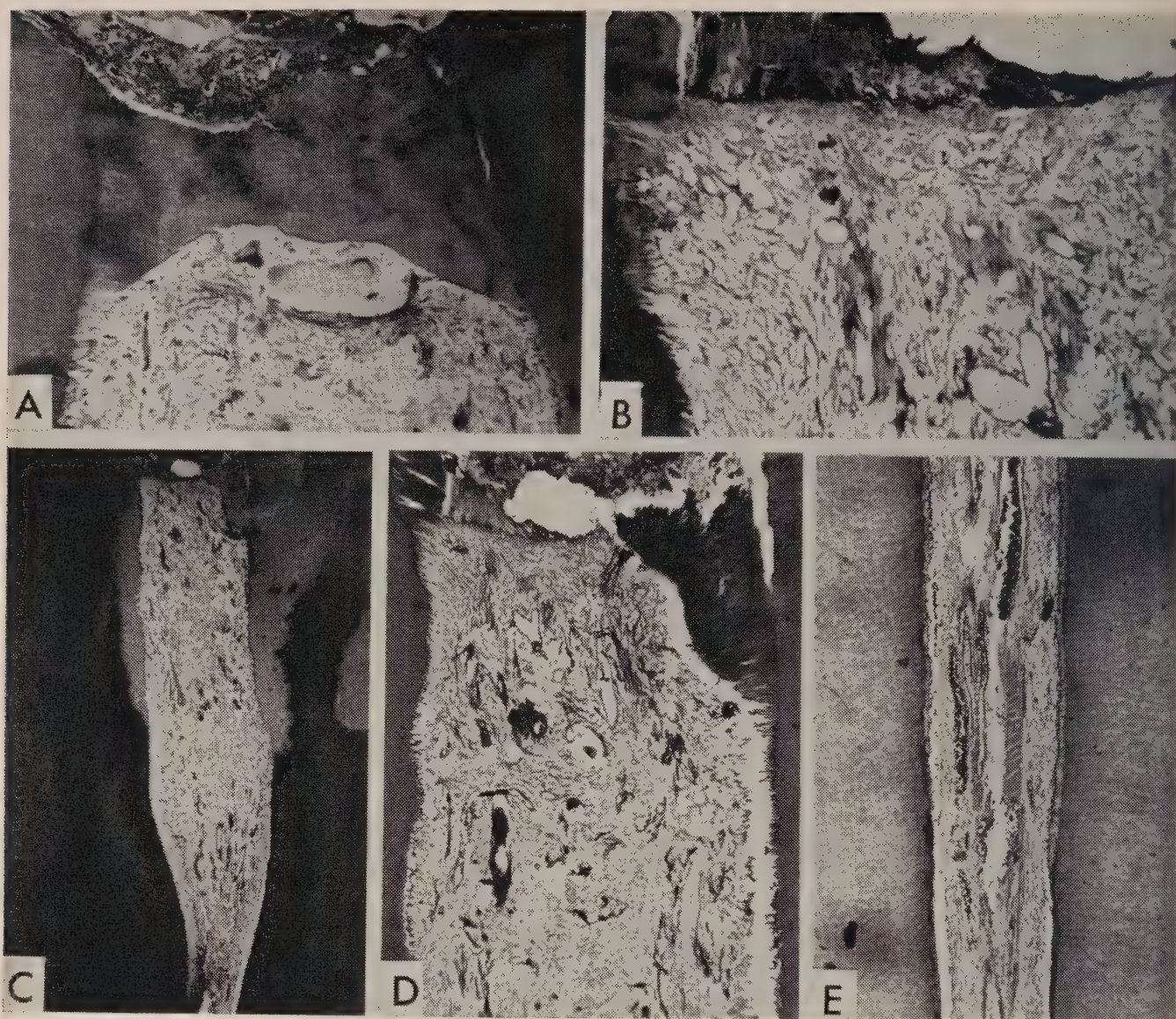


FIGURE 5 Pâte Ledermix (6 jours); pâte hydroxyde de calcium et oxyde de zinc-eugénol (139 jours); 2+ pulpe spontanément douloureuse: homme de 36 ans; 145 jours après coiffage direct. A, La dentine réactionnelle observée dans une coupe faite à un niveau latéral laisse entrevoir un 'bridging' après coiffage direct. H.E. x 80. B, La coupe médiane au niveau de l'ouverture pulpaire ne montre pourtant aucune formation de substance dure. On note une intense vasodilatation et une atrophie pulpaire. Mallory x 80. C, La vue d'ensemble montre une pulpe hyperémiee en voie d'atrophie. H.E. x 12. D, Au niveau de la dénudation la pulpe est restée ouverte. Le réseau fibrillaire est de nature collagène, les fibres de von Korff sont absentes. Gomori x 16. E, La région apicale présente une forte vasodilatation et une extravasation de fibrine. H.E. x 32.

logiques qui ne confirment pas ces résultats cliniques favorables; (c) les indications de l'emploi de ce médicament.

(a) Dans la pathologie pulpaire on a souvent mis en évidence une inflammation localisée de caractère abcédant.²³⁻²⁵ Ainsi, nous préférons, dans les cas de carie pénétrante accompagnés de symptômes douloureux, enlever toute la dentine ramollie et après désinfection de la plaie au thimerosal (Merthiolate) procéder à une large ouverture de la pulpe à la fraise stérile, plutôt que de laisser une couche de tissu

carié à proximité de la pulpe selon le procédé du coiffage naturel.²⁶

La décongestion d'une pulpe enflammée représente en effet une phase décisive du traitement vital des pulpopathies comme Mézl²⁷ et Rost²⁸ l'ont montré.

La rémission de toute symptomatologie douloureuse que nous avons constatée après une seule application de la pâte Ledermix sur le tissu pulpaire est donc due non seulement à l'effet antiphlogistique du triamcinolone mais aussi au drainage de l'expudat lors de l'ouverture pulpaire.

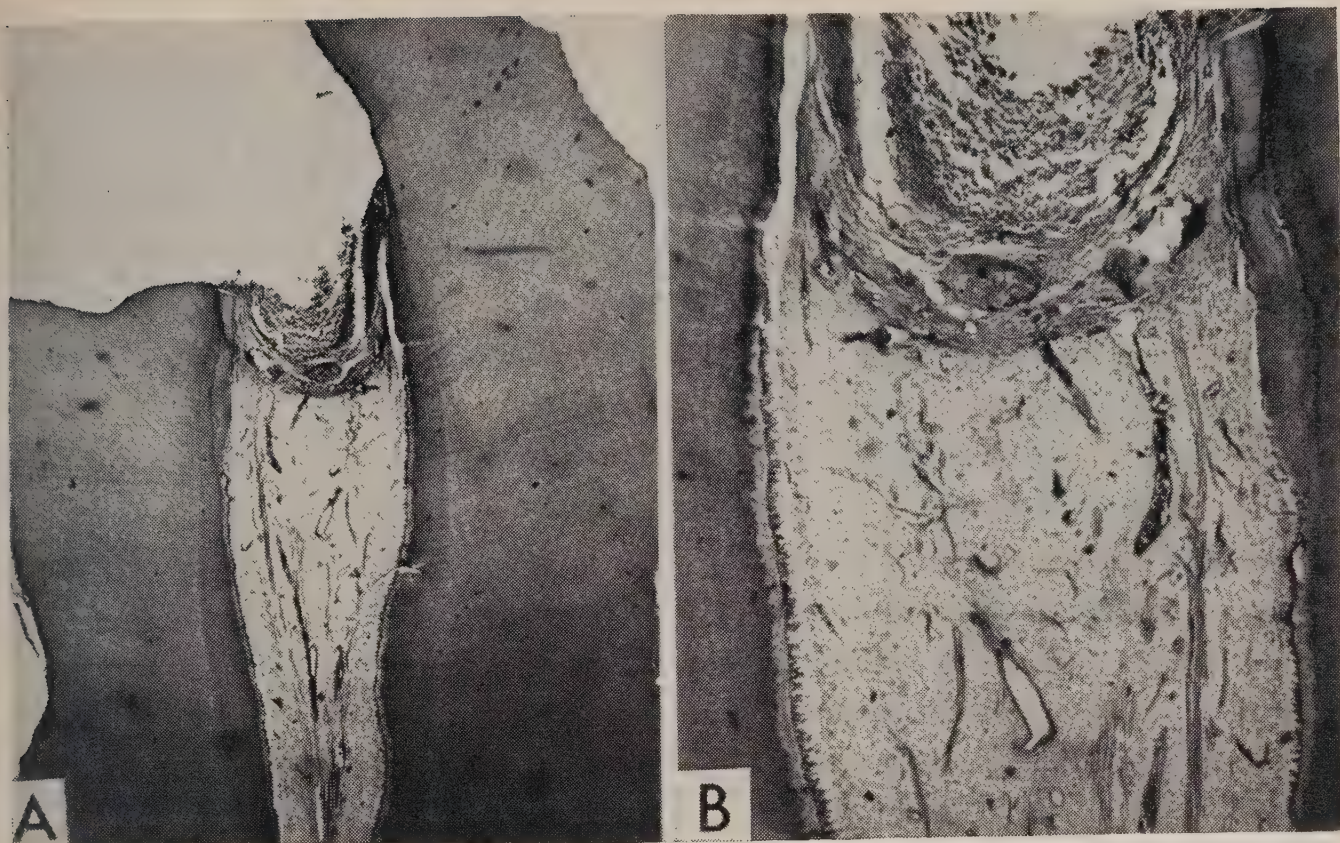


FIGURE 6 Pâte Ledermix (4 jours); cément Ledermix (46 jours); 4— pulpe spontanément douloureuse; femme de 21 ans; 48 jours après coiffage direct. A, Vue d'ensemble. On remarque l'absence d'un pont fibro-dentinaire. H.E. x 12. B, La pulpe, cliniquement sans symptôme, montre la présence des cellules inflammatoires et de congestion vasculaire. H.E. x 32.

Des résultats cliniquement favorables ont été obtenus dans le traitement de la dentine hypersensible²⁹⁻³³ après coiffage indirect aux corticoïdes. Cependant, cette méthode n'est pas recommandable sur des pulpes présentant de vives douleurs de caractère spontané et irradiant, car l'effet médicamenteux du Ledermix agissant sur le tissu pulpaire à travers une couche de dentine est amoindri. Ainsi, l'infection peut progresser librement et toujours sans symptômes dans le tissu affaibli par l'effet des corticoïdes ainsi que le confirme Eifinger.³⁴ Les contrôles histologiques de Mohammed³⁵ sur des pulpes de rats coiffées indirectement au Ledermix montrent également des altérations pourtant jugées faibles par cet auteur.

Aussi encourageants que soient les résultats cliniques obtenus après coiffage direct au Ledermix, les contrôles histopathologiques nous ont montré à nouveau qu'on ne doit pas les interpréter comme un rétablissement de la pulpe dans sa structure et dans sa fonction. Or, un pronostic valable ne peut nullement être

formulé sur la base des données cliniques seulement.

(b) Les contrôles histopathologiques après des périodes postopératoires de longue durée nous ont révélé le mode d'action du Ledermix sur le tissu pulpaire ce qui nous permet de préciser quelques indications de la corticothérapie en endodontie. L'action antiphlogistique de la pâte Ledermix a semblé être plus efficace que celle des autres mélanges corticostéroïdes-antibiotiques expérimentés antérieurement.

En revanche, en ce qui concerne le pouvoir réparateur du ciment Ledermix nous n'avons pas remarqué une action comparable à celle de l'hydroxyde de calcium. Ni sur des pulpes saines coiffées directement au ciment, ni sur des pulpes douloureuses traitées lors de la première séance à la pâte puis au ciment, nous n'avons pu observer la formation d'un pont de dentine réactionnelle couvrant la plaie pulpaire. Les trois images histologiques présentées par Schroeder³⁶ relatives à la néoformation d'un pont après

coiffage direct au Ledermix sont sujettes à caution. D'après notre interprétation, il s'agirait de dentine réactionnelle déjà présente avant l'intervention et non d'une néoformation consécutive au coiffage direct au Ledermix.

Sur la base des connaissances concernant l'activité antianabolique des corticoïdes sur le métabolisme protéique, la formation d'une trame organique paraît être exclue. Ces médicaments exercent une action inhibitrice sur la formation et la prolifération des fibroblastes empêchant l'incorporation des acides aminés en protéines.³⁷ Bussi et al³⁸ ont observé, sur des plasmocytes cultivés dans un milieu contenant de la prednisone, l'absence d'élaboration d'acide ribonucléique nécessaire à la synthèse de collagène. Cette action inhibitrice des corticoïdes sur la dentinogenèse s'est révélée être obligatoire et irréversible.³⁹ La dentinogenèse était entravée aussi bien dans la forma-

tion de sa trame organique prédentinaire que dans la minéralisation. La disparition complète des fibres de von Korff, qui représentent la source principale de la trame fibrillaire de la prédentine, a été constatée régulièrement au voisinage du coiffage direct au Ledermix. Dans cette zone, la couche prédentinaire était souvent très réduite ou entièrement absente.

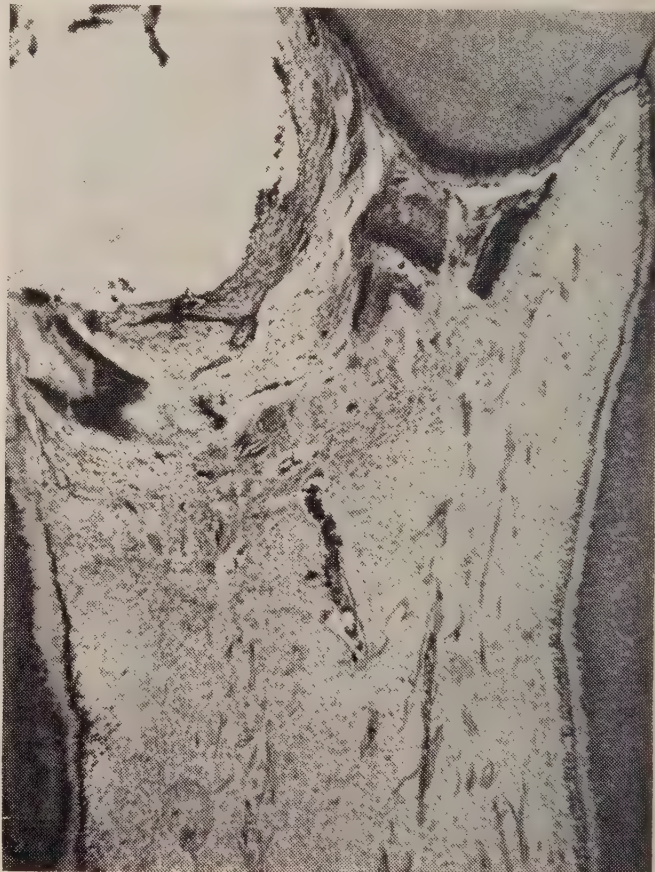
Dans des travaux précédents^{18,19,40} nous avons établi la présence d'une perturbation au niveau de la minéralisation qui se manifestait soit par l'arrêt de la calcification de la couche de prédentine, soit par une calcification de type globulaire. Après de longs intervalles postopératoires, on avait souvent noté dans la région pariétale de la racine la formation d'une substance dure de type ostéoïde.

L'absence de fibrodentine de réparation délimitant le coiffage direct s'est révélée être défavorable à la guérison définitive du tissu pulpaire. La protection de celui-

FIGURE 7 Pâte Ledermix (2 jours); ciment Ledermix (89 jours); —4 pulpe spontanément douloureuse; femme de 30 ans; 91 jours après coiffage direct. Dans la région du coiffage on note l'absence de formation de substance dure et une infiltration cellulaire étendue. H. E. x 16.



FIGURE 8 Pâte Ledermix (6 jours); ciment Ledermix (93 jours); +1 pulpe spontanément douloureuse; femme de 21 ans; 101 jours après coiffage. L'absence de pont de dentine et l'infiltration cellulaire au voisinage du coiffage sont évidentes. Les copeaux de dentine sont restés isolés sans être entourés d'une matrice calcifiable. H.E. x 16.



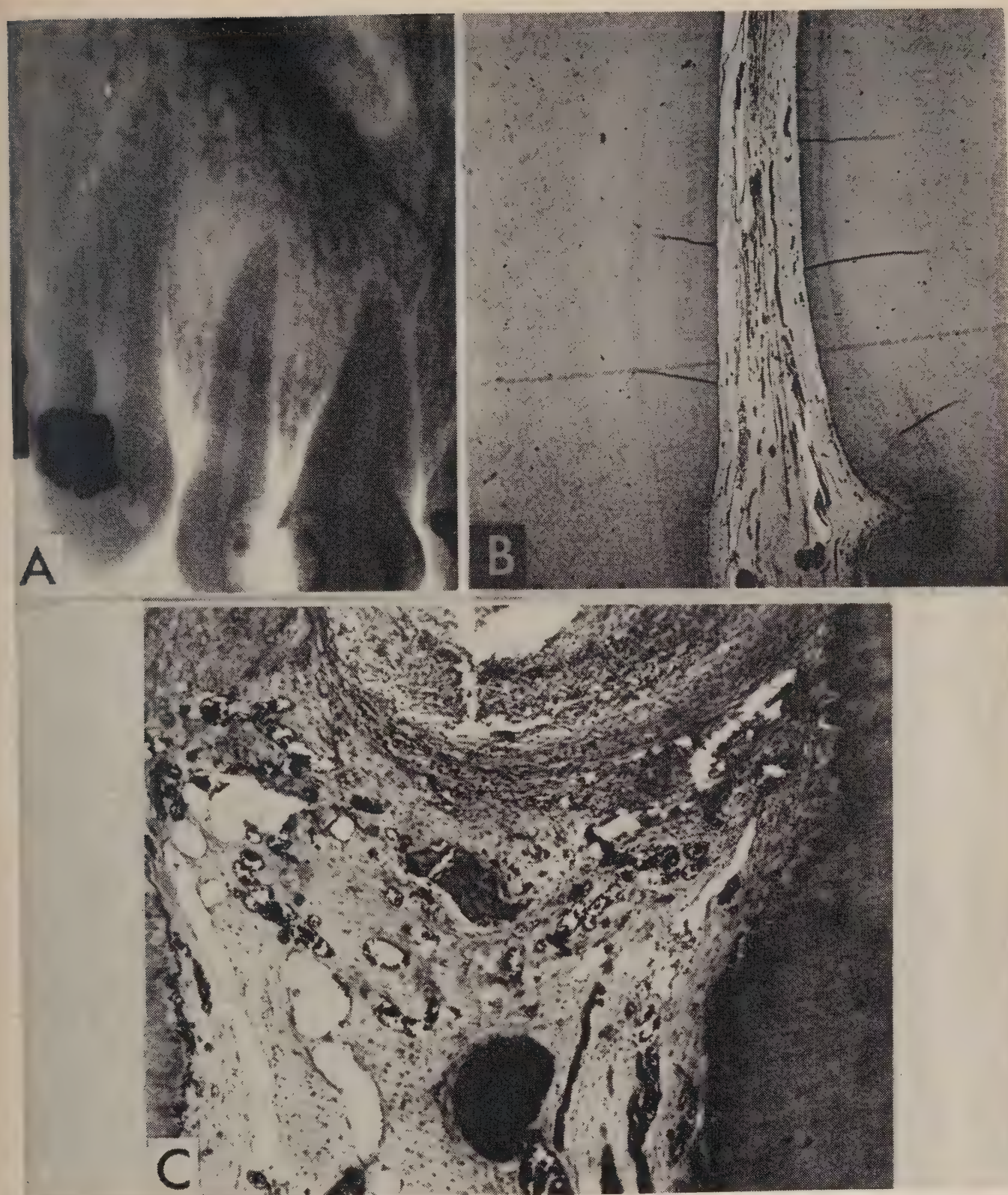


FIGURE 9 Pâte Ledermix (6 jours); ciment Ledermix (88 jours); 3+ pulpe spontanément douloureuse; femme de 40 ans; 94 jours après coiffage. A, La radiographie prise avant l'extraction ne révèle rien de particulier. B, La vue d'ensemble met en évidence une forte hypérémie dans l'ensemble de la pulpe. H.E. x 12. C, Les détails de la région du coiffage révèlent l'arrêt de la dentinogenèse et la présence d'une inflammation chronique de la pulpe. H.E. x 180.

ci n'étant pas assurée par la néoformation de substance dure, des infiltrations microbiennes ont provoqué des phénomènes d'inflammation secondaire d'autant plus importants que la période de contrôle

Postopératoire était plus longue. Ces constatations prouvent que l'action antiphlogistique et anti-infectieuse du Ledermix n'est pas durable.

(c) Sur la base de nos expériences

cliniques et de nos contrôles histologiques effectués sur 207 dents humaines, la corticothérapie en endodontie devrait être limitée aux indications suivantes:

—pour le coiffage définitif des pulpes douloureuses sur les dents temporaires;

—pour le traitement palliatif des pulpes douloureuses qui doivent être ensuite extirpées sous anesthésie chez les patients adultes;

—en tant que pansement radiculaire dans le cas de complications desmodontales des pulpes nécrosées, dont l'emploi sera discuté ailleurs.

En conclusion, tout coiffage direct au Ledermix, dont le but est la conservation de la vitalité d'une pulpe dénudée, avec ou sans symptomatologie, est contre-indiqué parce qu'il provoque une métaplasie du tissu pulpaire et une inhibition de la dentinogenèse.

RÉSUMÉ

Trente pulpes présentant des douleurs spontanées et 10 pulpes sans signe clinique, chez des patients âgés de 13 à 40 ans, ont été coiffées directement à la pâte et au ciment Ledermix afin d'étudier le mode d'action de ce médicament sur le tissu pulpaire.

1. L'action cliniquement favorable enregistrée par tous les auteurs a été confirmée.

2. Les examens histopathologiques par contre ont mis en évidence les altérations suivantes:

(a) une inhibition de la dentinogenèse caractérisée par l'absence d'un pont de dentine réactionnelle;

(b) une métaplasie du tissu pulpaire se manifestant par la disparition du réseau argyrophile et l'appauvrissement des éléments cellulaires (fibroblastes et odontoblastes);

(c) une inflammation chronique le plus souvent localisée au voisinage du coiffage, démontrant que l'action antiphlogistique et anti-infectieuse du Ledermix n'est pas durable.

Toutes ces constatations histopathologiques sont conformes à celles faites antérieurement avec d'autres mélanges cor-

ticostéroïdes-antibiotiques bien que les réactions furent moins sévères.

3. Malgré les résultats cliniques encourageants l'évidence histologique nous contraint de continuer à proscrire le Ledermix en tant que médicament pour le traitement vital de la pulpe et de préciser les indications de la corticothérapie en endodontie.

1. Baume, L. J. Survey of dentine biology. *Brit. D. J.* 116:254, 1964.
2. Witzel, A. Compendium der Pathologie und Therapie der Pulpakrankheiten des Zahnes. Hagen i.W. (Allemagne), H. Risel, 1886.
3. Gysi, A. Ein Fall von Selbsthilfe einer erkrankten Pulpa. *Schweiz. Mschr. Zahnheilk.* 10:254, 1900.
4. Hermann, B. W. Calciumhydroxyd als Mittel zum Behandeln und Füllen von Wurzelkanälen. Diss., Würzburg, 1920.
5. Hess, W. Die Behandlung der lebenden Pulpa. Normale und Patho-histologie. *Schweiz. Mschr. Zahnheilk.* 47:464, 1937.
6. Hoffman, M. Die Vitalamputation mit Calxyl bei extzündeten Pulpen. Zürich, Buchdruckerei Berichthaus, 1939.
7. Pajarola, W. F. Die Überkappung gesunder und infizierter Pulpen mit Calxyl. Zürich, Buchdruckerei Berichthaus, 1940.
8. Castagnola, L. Stellungnahme der konservierenden Zahnheilkunde zur Lebenderhaltung der Pulpa durch Überkappung und Vitalamputation unter Berücksichtigung der bis heute vorliegenden Forschungsergebnisse. München, Hanser, 1953.
9. Müller, O. Pulpa- und Wurzelbehandlung. Basel, Schwabe, 1953.
10. Maeglin, B. Über Gründe von Misserfolgen nach Pulpenüberkappungen. *Zahnärztl. Welt.* 16:479, 1950.
11. Triadan, H. et Schroeder, A. Die pharmakologische Heilung der Pulpitis. 2. Mitteilung. *Schweiz. Mschr. Zahnheilk.* 71:94, 1961.
12. Schroeder, A. Application of corticosteroids in endodontia. *D. Practitioner & D. Record* 13:420, 1963.
13. Ackermann, René et Pompian, Louis. Conditions actuelles du traitement conservateur des pulpopathies. (Expérimentation du triamcinolone - chloramphénicol - xylocaïne). *Actualités Odontostomat.* No. 63:295, 1963.
14. Rowe, A. H. R. A report on the use of a new material for pulp capping. *Dental News* No. 5:1, Aout 1963.
15. Olsen, P. Clinical experience with a corticoid-antibiotic preparation in conservative treatment of the pulp. *J.A.D. Canad.* 30:771, 1964.
16. Schroeder, A. Corticothérapie endodontique. *Rev. franç. Odonto-stomat.* 12:1054, 1965.
17. Schroeder, A. Möglichkeiten und Grenzen der Vitalerhaltung der entzündeten Pulpa. *Schweiz. Mschr. Zahnheilk.* 75:1075, 1965.
18. Fiore-Donno, G. et Baume, L. J. Effects of capping compounds containing corticosteroids on the human dental pulp. *Helv. Odont. Acta* 6:23, 1962.
19. Idem. Contrôles histopathologiques du coiffage pulpaire aux corticostéroïdes. *Schweiz. Mschr. Zahnheilk.* 73:413, 1963.
20. Baume, L. J. Möglichkeiten und Grenzen der Vitalerhaltung der entzündeten Pulpa (mit besonderer Berücksichtigung der Kortikoide). *Schweiz. Mschr. Zahnheilk.* 75:1085, 1965.
21. Pearse, A. G. E. Histochemistry; theoretical and applied. London, Churchill, 1960.
22. Plank, J. et Rychlo, A. Eine Schnellenkalkungsmethode. *Zbl. allg. Path., path. Anat.* 89:252, 1952.
23. Mitchell, D. F. et Tarplee, R. E. Painful pulpitis. A clinical and microscopic study. *Oral Surg., Oral Med. & Oral Path.* 13:1360, 1960.
24. Seltzer, Samuel, Bender, I. B. et Ziontz, Murray.

- Dynamics of pulp inflammation: correlations between diagnostic data and actual histologic findings in the pulp. *Oral Surg., Oral Med. & Oral Path.* 16:846, 1963.
25. Fiore-Donno, G. A propos d'un nouveau traitement des pulpes enflammées. *Méd. et Hyg.* 21:393, 1963.
 26. Bonsack, C. Le coiffage naturel ou indirect. *Schweiz. Mschr. Zahnheilk.* 59:112, 1949.
 27. Mézl, Z. La guérison de la pulpite. *Rev. Stomat.* 49:489, 1948.
 28. Rost, A. Histologische Untersuchungen nach Infiltrations-Anästhesie bei entzündlich veränderten Pulpen. *Dtsch. Zahnärztl. Zeitsch.* 13:137, 1958.
 29. Fry, A. E., Watkins, R. F. et Phatak, N. M. Topical use of corticosteroids for the relief of pain sensitivity of dentine and pulp. *Oral Surg., Oral Med. & Oral Path.* 13:594, 1960.
 30. Mosteller, J. H. Use of prednisolone in the elimination of postoperative thermal sensitivity. A clinical study. *J. Pros. Den.* 12:1176, 1962.
 31. Idem. Ability of a prednisolone solution to eliminate pulpal inflammation. *J. Pros. Den.* 13:754, 1963.
 32. Dachi, S. F., Ross, Alan et Stigers, R. W. Effects of prednisolone on the thermal sensitivity and pulpal reactions of amalgam-restored teeth. *J.A.D.A.* 69:565, 1964.
 33. Idem. Effects of prednisolone on the thermal sensitivity and pulpal reactions of silicate-restored teeth. *J. Pros. Den.* 14:1124, 1964.
 34. Eifinger, F. F. Beitrag zur Glukokortikoid-Therapie der Pulpitis. *Dtsch. Zahnärztl. Zeitsch.* 20:1206, 1965.
 35. Mohammed, C. I. Investigations into the reaction of unexposed dental pulp to Ledermix. *Med. Res. Cyanamid. Int.-Selected Reports*, Avril 1964.
 36. Schroeder, A. Corticosteroids in endodontics. *J. Oral Therap. Pharmac.* 2:171, 1965.
 37. Walker, B. S., Boyd, W. C. et Asimov, I. Biochemistry and human metabolism. Baltimore, Williams and Wilkins, 1957.
 38. Bussi, L., Caprio, G., Girelli, M. et Pizzi, F. Etude spectrophotométrique sur l'ARN de plasmocytes humains cultivés "in vitro." *Ann Histochimie* 8:233, 1963.
 39. Fiore-Donno, G. Etude expérimentale sur la dentinogenèse chez l'homme. *Proc. 10th ORCA Congress*, p. 199. Londres, Pergamon Press, 1964.
 40. Baume, L. J. et Fiore-Donno, G. Kortikosteroid-behandlung der Pulpa pathohistologisch in Frage gestellt. *Zahnärztl. Welt/Reform* 64:422, 1963.

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Clinical, pharmacological and systemic considerations of corticosteroids in pulp therapy

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Corticosteroids can prevent pulpal hyperaemia and necrosis by modifying or inhibiting the inflammatory process. Their antiphlogistic action may, however, facilitate the liberation of micro-organisms into the blood stream. Combinations of corticosteroids and antibiotics have therefore been advocated to reduce the risk of bacteraemia.

Grâce aux corticostéroïdes, il est possible de prévenir l'hyperémie et la nécrose de la pulpe en supprimant ou en modifiant le processus inflammatoire. L'action antiphlogistique de ces médicaments peut cependant faciliter les diffusions des micro-organismes. Pour réduire le risque de bactériémie, on recommande d'employer les corticostéroïdes en association avec les antibiotiques.

Corticosteroid compounds have been used to treat many oral lesions such as postoperative sequelae following oral surgery,

gingivitis, herpetic lesions, allergic reactions and temporomandibular joint disorders.^{1,2} However, the most recent and

universally interesting application is in the prevention of pulpal hyperæmia and/or necrosis.

It is generally understood that corticosteroids can prevent the production and inhibit the extension of the inflammatory process. Although there is really no clear indication of their exact locus of action, present knowledge suggests that the gross effects are on vascular responsiveness and endothelial permeability. There is increased vascular tone, decreased loss of fluid and cells from the blood vessels and diminished adherence of leucocytes to endothelium. In addition, there is decreased fibrinogenesis. These results may be due to direct action on cellular elements, ground substance or fibres, or indirect action upon chemical precursors.³⁻⁹

This prevention or modification of the vascular and cellular response allows the multiplication of living noxious agents. Germuth¹⁰ studied the deleterious effects of cortisone on infection using rabbits subjected to cutaneous pneumococcal infection. Microscopic examination of the infected skin sites in control animals revealed extensive leucocytic infiltration and other signs of inflammation but no micro-organisms. The cortisone treated animals showed a decreased inflammatory response, many micro-organisms, persistent bacteraemia and increased mortality.

Menkin¹¹ stated that cortisone suppressed the inflammatory response in a localized infected area and allowed micro-organisms to multiply freely. From experiments with tubercle bacilli, Lurie et al¹² postulated that something was suppressed by cortisone in the development of the tubercle which permitted the free multiplication of the bacilli. Other investigators have reported increased susceptibility to infection and a spread of existing infection, including bacteraemia and septicæmia, because of the antiphlogistic effects of corticosteroid therapy.¹³⁻¹⁷

Since the tooth pulp is a very vascular tissue, it is conceivable that the unhindered growth and multiplication of infectious agents could result in their entrance into blood vessels. The use of potent anti-inflammatory compounds in the presence of pulpal infection might, therefore, cause bacteraemia.

The dental pulp is well protected by a dentine wall. Blood vessels are terminal, entering and leaving the pulp through minute openings at the apex. Any increase in the blood vascular content would cause a marked increase in intravascular pressure. It is this circulatory pattern that renders the pulp less able than other tissues to react successfully to irritants and less able to limit the degenerative processes produced by mild irritation or injury. The corticosteroids, by inhibiting the natural inflammatory process, may prevent the sequelae that lead to necrosis. However, most investigators recommend the concomitant use of antibiotics because of the danger inherent in a reduction of the inflammatory response in the presence of micro-organisms. Otherwise, the spread of micro-organisms from a localized area throughout the pulp or throughout the body, via the blood stream, is a distinct possibility.

Many laboratory and clinical studies have revealed the dramatic inhibition or reversal of hyperæmic and pulpitic conditions attributable to corticosteroids. Stewart and Chilton¹⁸ used combinations of corticosteroids and antihistamines to reduce post-endodontic pain. Antibiotics were used regularly as a precaution against the presence of micro-organisms in the root canal. They reported one case of gingivectomy and osteoplasty in which antibiotics were not used and the patient developed a severe cellulitis.

Kiryati¹⁹ investigated the histological effects of hydrocortisone, alone and in combination with antibiotics. When infection was allowed to develop for 48 hours, before the hydrocortisone was applied, there was extensive pulpal degeneration and no dentine bridges were formed. When higher dosages were used in the presence of severe infection, there appeared to be increased necrosis and extension of infection.

Fry et al²⁰ reported their experiences with a paste containing prednisolone and camphorated parachlorophenol. The paste was applied to exposed dentine, aseptic mechanical exposures and carious lesions. Since the dentinal tubules are permeable, they postulate that molecules of chemical agents could diffuse into the pulp cham-

ber. It should be noted that Bender et al²¹ found that micro-organisms could penetrate dentinal tubules and enter the pulp.

Schroeder and Triadan²² were unable to relieve pulpitis toothache with hydrocortisone alone. Therefore, they tried a combination of triamcinolone and chloramphenicol. The rationale was that the mesenchymal block produced by the corticosteroid, as reported by Kiryati, would aid the dissemination of micro-organisms. In the presence of purulent pulpitis the use of corticosteroids alone leads to total suppuration and submucosal abscesses. Mosteller^{23,24} reported his observations after using the same paste described by Fry et al under temporary crowns. Prednisolone seemed to prevent hyperæmia and the possible sequelae but camphorated monochlorophenol was necessary to prevent a fast spread of infection.

A thorough review of the literature reveals that no bacteræmia has ever been unequivocally associated with procedures confined to the pulp chamber or canal. Positive blood cultures have only been produced when the periapical tissues were traumatized. Klotz et al²⁵ have now reported the liberation of micro-organisms into the general blood circulation after topical application of prednisolone on the infected dental pulps of monkey teeth. Since all procedures in this study were confined to the pulp chamber, prednisolone appears to be capable of causing dissemination of micro-organisms into the blood stream for extended periods of time. These micro-organisms could be virulent. Hence, their pathogenic potential is increased. Klotz et al also postulated that bacteræmia may be more readily produced from young permanent teeth with wide apices.

Corticosteroids are capable of reversing or preventing the unpleasant and uncomfortable aspects of the inflammatory reaction. The resultant loss of natural defence mechanisms may, however, be more significant than any local relief. The use of these potent antiphlogistic agents to treat oral lesions is therefore questionable until further investigation is completed. Transient bacteræmia can result from

dental procedures and has caused bacterial endocarditis.²⁶ When a child has a history of damaged heart valves, prophylactic systemic antibiotic therapy is used before dental extraction or other bacteræmia-producing procedures. If the corticosteroids can produce bacteræmia, the same precautionary measures should be invoked.

Clinical and microscopic evidence indicates that combinations of corticosteroids and antibiotics may aid in the survival of infected dental pulps. Although it is not known if these compounds can preclude systemic involvement, they are preferable to the use of corticosteroids alone. A compound which decreases the inflammatory reaction in the pulp, controls the spread of micro-organisms and allows the formation of secondary dentine would be ideal. However, there appears to be antagonism between calcium hydroxide and certain antibiotics. Further study is necessary to achieve a method of preventing the self-destruction of the pulp without the dangers of bacteræmia.

The use of drugs in dentistry has generated two antagonistic viewpoints. There are those who consider the use of almost any drug as an admission of failure and a lack of ability or integrity on the part of the dentist. At the other extreme are those who feel that most problems in the management and dental treatment of patients can be handled by one medication or another. Drugs, including the corticosteroids, are no panacea but they can be useful tools. It is their proper use in the hands of well trained intelligent dentists that will achieve the desired results.

SUMMARY

Corticosteroids can prevent pulpal hyperæmia and necrosis by modifying or inhibiting the inflammatory process. Their antiphlogistic action may, however, facilitate the liberation of micro-organisms into the blood stream. Combinations of corticosteroids and antibiotics have therefore been advocated to reduce the risk of bacteræmia.

1. Hendershot, L. C. Use of adrenocorticosteroid hormones. *D. Clin. N. America* p. 530, 1963.
2. Schroeder, A. Cortisone in dental surgery. *Internat. D. J.* 12:356, 1962.
3. Ragan, C., Howes, E., Plotz, C. M., Meyer, K. and Blunt, J. W. Effect of cortisone on production of granulation tissue in the rabbit. *Proc. Soc. Exp. Biol. and Med.* 72:718, 1949.
4. Menkin, V. Further studies on mechanism of increased capillary permeability in inflammation with the aid of cortisone and ACTH. *Proc. Soc. Exp. Biol. and Med.* 77:592, 1951.
5. Schaffarzick, R. W. Adrenocorticotrophic hormone and the adrenal steroids. *J. California D. A. and Nevada D. Soc.* 28:81, 1952.
6. Moon, V. H. and Tershakovec, G. A. Influence of cortisone upon acute inflammation. *Proc. Soc. Exp. Biol. and Med.* 79:63, 1952.
7. Rosenfeld, H., Sevy, R. W. and Ohler, E. A. Adrenal steroids and vascular reactivity. *Fed. Proc.* 18:130, 1959.
8. Goldman, L., O'Hara, H. and Baskett, Jeanne. A study of the local tissue reactions in man to cortisone and compound FF. VI. Histopathological studies of the local effect of compound F in normal and pathologic skin of man. *J. Invest. Derm.* 20:271, 1953.
9. Dougherty, J. quoted in Davis, F. Corticosteroid therapy for pulp exposures. *J. Philippine D. A.* 15:17, September 1962.
10. Germuth, F. G., Jr., Ottinger, Barbara and Oyama, Jiro. The influence of cortisone on the evolution of acute infection and the development of immunity. *Bull. J. Hopkins Hosp.* 91:22, 1952.
11. Menkin, V. The significance of the accumulation of cortisone in an inflamed area. *Brit. J. Exp. Path.* 34:412, 1953.
12. Lurie, M. B., Zappasodi, P., Donnenberg, A. M., Jr. and Swartz, Irene B. Constitutional factors in resistance to infection: the effect of cortisone on the pathogenesis of tuberculosis. *Science*: 113, 1951.
13. Taylor, S., Irons, E. and Baskett, L. Clinical complications from long term administration of ACTH and cortisone. Paper presented before the Chicago Society of Internal Medicine, November 1950.
14. Kass, E. H. and Finland, M. The role of adrenal steroids in infection and immunity. *New Eng. J. Med.* 244:464, 1951.
15. Michael, M., Jr. The effect of cortisone and ACTH on bacterial infections. *Southern Med. J.* 44:450, 1951.
16. Schwartzman, G. and Fisher, Alice. Alteration of experimental poliomyelitis infection in the Syrian hamster with the aid of cortisone. *J. Exp. Med.* 95:347, 1952.
17. Dougherty, J. W., Reisch, M. and Lewis, G. M. Lowered resistance to infection resulting from cortisone and corticotropin. *New York J. Med.* 54: 2964, 1954.
18. Stewart, G. G. and Chilton, N. W. Role of antihistamines and corticosteroids in endodontic practice. *Oral Surg., Oral Med. & Oral Path.* 11:433, 1958.
19. Kiryati, A. A. Effect of hydrocortisone plus polyantibiotics upon the damaged and infected pulp of rat molars. *J. D. Res.* 37:886, 1958.
20. Fry, A. E., Watkins, R. E. and Phatak, N. M. Topical use of corticosteroids for the relief of pain sensitivity of dentin and pulp. *Oral Surg., Oral Med. & Oral Path.* 13:594, 1960.
21. Bender, I. B., Seltzer, Samuel and Kaufman, I. J. Infectibility of the dental pulp by way of dental tubules. *J. A. D. A.* 59:466, 1959.
22. Schroeder, A. and Triadan, Hugo. Pharmacotherapy of pulpitis. *Oral Surg., Oral Med. & Oral Path.* 15:345, 1962.
23. Mosteller, J. H. Use of prednisolone in the elimination of postoperative thermal sensitivity. A clinical study. *J. Pros. Den.* 12:1176, 1962.
24. Idem. Ability of a prednisolone solution to eliminate pulpal inflammation. *J. Pros. Den.* 13:754, 1963.
25. Klotz, M. D., Gerstein, Harold and Bahn, A. N. Bacteremia after topical use of prednisolone in infected pulps. *J. A. D. A.* 71:871, 1965.
26. Eisenbud, Leon. Subacute bacterial endocarditis precipitated by non-surgical dental procedures. Report of two cases. *Oral Surg., Oral Med. & Oral Path.* 15:624, 1962.

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Copies of the Bluenose II picture featured on the cover of the February Journal may be obtained from Talbot's Bookshop, Halifax Shopping Centre, Halifax, Nova Scotia. The price per print is \$5.50 postpaid.

Thirty-six teeth were extracted from three haemophilic patients who received no transfusions of blood, plasma or plasma products to control bleeding. Close co-operation between the dentist and the haematologist supplemented by application of local haemostatic measures (packing sockets with oxidized regenerated cellulose saturated with thrombin- NaHCO_3 , and protection of the surgical area) obviated the necessity for replacement therapy.

■

On a extrait 36 dents chez trois patients hémophiles sans qu'ils reçoivent de transfusion de sang, de plasma ou de sous-produits de plasma pour empêcher l'hémorragie. La collaboration étroite du dentiste et de l'hématologue et l'application de mesures hémostatiques locales (pansements de cellulose résorbable imprégnés de thrombine) ont suffi à contourner le problème posé par la déficience du sang.

Hæmophilia is a generic term which includes a number of diseases presenting a similar clinical picture. The common denominator is a hypocoagulability of the blood resulting from defective thromboplastin formation. This defect is due to (1) a plasma factor deficiency (factor VIII or antihæmophilic globulin)^{1,2} or (2) an anticoagulant which appears to have an antithromboplastic activity.³⁻¹⁷

Laboratory coagulation studies clearly demonstrate two types of hæmophilia: (1) hæmophilia A (classical hæmophilia) which affects 90 per cent of all hæmophiliacs, and (2) hæmophilia B (Christmas Disease) which affects the other 10 per cent. Although hæmophilia occurs typically in males, it can also be found in females.^{18,19}

Hæmophiliacs are classified by Tocantins et al²⁰ into four different grades based on the severity of the clotting de-

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Exodontia in hæmophilia: three case reports

fect. Observation of the effects of therapy in comparable patients is facilitated by this system of grading and allows a semi-quantitative method of distinguishing mild from severe cases.

Oral hygiene is usually neglected by the hæmophiliac because he is afraid that toothbrushing may initiate bleeding. He may also forego dental treatment for the same reason or because of the reluctance of some dentists to treat hæmophiliacs. Hæmophiliacs generally seek emergency dental treatment when conservative therapy is no longer possible and tooth removal becomes inevitable.

Exodontia for hæmophiliacs is complicated by the alleged difficulty in effecting hæmostasis during and following the operation.^{21,22} Zegarelli et al²³ report that a total of 691 days of hospital care was required to manage successfully the hæmorrhagic episodes of 16 hæmophiliacs. Nine of these patients received 26,400 ml. of whole blood and 11 received 65,725 ml. of plasma. The literature on dental extraction in hæmophiliacs is replete with references to the large amounts of plasma, blood and blood products required to achieve hæmostasis. Little or no consideration has been given to other factors that complicate the hæmorrhagic tendency of these patients. The importance of transfusion therapy should not be underestimated but the indiscriminate use of blood or blood products is certainly

open to question. Heart failure from vascular overloading following multiple transfusions to arrest postextraction bleeding in a hæmophiliac has been reported.²⁴ Plasma given for several days can be responsible for the development of refractory states. The possibility of this development is even greater with the administration of concentrated animal or human antihæmophilic globulin.²⁵

Several recently published papers report the successful control of dental bleeding in hæmophiliacs without resorting to transfusion therapy.²⁶⁻³⁰ Herfert²⁶ reports successful hæmostasis in three hæmophiliacs using intra-osseous infiltration of thrombin. He mentions 12 other cases in which his co-workers accomplished hæmostasis following extractions. Herfert considers replacement therapy unnecessary when thrombin infiltration is used.

Lucas et al have described another approach to the management of hæmophiliacs undergoing dental extraction without transfusion therapy.²⁷⁻³⁰ Three procedures were combined for this purpose: (1) hypnosis,³¹ (2) packing of the socket with absorbable hæmostatic material saturated with thrombin — NaHCO_3 solution³² and (3) protection of the surgical area. Using these procedures, the duration of hospital residence following dental extraction was considerably shortened although no blood transfusions were used prior to, during, or after operation to effect hæmostasis in any one of 24 hæmophiliacs for whom 113 teeth were extracted.

This paper describes my experience with three hæmophiliacs who underwent multiple dental extractions.

CASE REPORTS

A medical examination prior to treatment revealed that hæmophilia was the only abnormality common to these three patients. Results of routine laboratory studies were within the normal range. Special coagulation tests were used to evaluate the severity of the coagulation defect. The patients were graded hæmatologically according to Tocantins' classification.²⁰ This is based on the theory that the hypocoagulability of the blood in

hæmophilia is due to an excess of naturally occurring antithromboplastin in the plasma. The antithromboplastin is said to inhibit formation of plasma thromboplastin as well as formed thromboplastin (antihæmophilic globulin). Five tests were used to evaluate the severity of the coagulation defect in these three patients. Normal values for these tests as well as the values in each individual patient are shown in Table 1. Other plasma coagulation tests, such as prothrombin, fibrinogen concentration, and so forth, were performed and gave normal results. This was done to reduce any complications due to low concentrations of procoagulants. The thromboplastin generation test was performed in each patient and showed abnormal results. However, according to Tocantins' classification this test should be used only as a confirmatory test to help distinguish between different types of defect. It should not be used for grading the severity of the defect. Accordingly, this test is not included in Table 1.

Patient 1. — This was a 38 year old white male with mild hæmophilia A. His only previous hospital experience was related to hæmophilia and occurred in 1958 following the extraction of three upper anterior teeth by a private dentist. Profuse bleeding, which could not be controlled in the dentist's office, started a few hours after the extractions. The patient was admitted to hospital where transfusion therapy was immediately instituted. Several transfusions of blood and plasma were necessary to control the postextraction hæmorrhage. The patient stayed in hospital for 10 days. On discharge, he was strongly advised to have a complete evaluation of his total dental needs. Six months later the patient returned to the oral surgery department for dental and radiographic studies. Gingival tissue throughout the mouth was very congested and bleeding was observed in some areas. All remaining teeth were badly decayed with the exception of six maxillary teeth. Radiographs disclosed retained roots in the maxillary right and left bicuspid areas. All mandibular teeth had evidence of periapical radiolucency or were so carious that they were beyond saving.

TABLE 1 Results of coagulation studies to evaluate severity of coagulation defect.

Test	Normal values	Patient 1	Patient 2	Patient 3
Venous blood clotting times:				
1 glass 100% blood	8-15 min.	17 min.	19 min.	90 min.
silicone 100% blood	25-40 min.	53 min.	245 min.	315 min.
silicone 60% blood 40% saline	15-30 min.	39 min.	135 min.	130 min.
silicone 30% blood 70% saline	20-40 min.	90 min.	180 min.	215 min.
Clot delaying titre	None	1:2*	1:2	1:20
Antithromboplastin activity (units/ml. plasma)	10-20	20-30	28	40
Plasma clotting time:				
89% concentration †	1,000-2,000 sec.	2,400 sec.	No clot	No clot
32% concentration ‡	450-600 sec.	600 sec.	585 sec.	3,260 sec.

*This indicates that one part of haemophilic plasma delayed the clotting time of two parts of normal plasma by an amount equal to or greater than one-third the clotting time of three parts of normal plasma.
†0.5 ml. plasma, 0.05 ml. 0.2 M CaCl₂ silicone tubes, 38°C.
‡0.17 ml. plasma, 0.21 ml. buffered 0.85% NaCl, 0.17 ml. 0.02M CaCl₂ silicone tubes, 38°C.

In order to test the patient's hæmorrhagic response to extraction it was decided to remove only one tooth. Following the operation the patient remained in the clinic for one hour and was then allowed to go home because bleeding from the extraction site appeared to be well under control. He returned on the fifth postoperative day for an appraisal of the extraction area. No bleeding had occurred and healing was proceeding well. Although advised to return in two weeks for further extractions, the patient did not reappear until two months later. At this time he was suffering from an acute cellulitis and an actively draining extra-oral fistula at the base of the chin (Figure 1). Culture of the exudate revealed a causative organism sensitive to triple sulphonamide (sulphacetamide - sulphadiazine-sulphamerazine). Administration of this drug combination was begun immediately. Two days later the patient was admitted to the hospital for the removal of the mandibular central incisors and the right lateral incisor. A hospital sojourn was considered advisable as a precautionary measure in view of the hæmophilia. Postoperative recovery was uneventful and the patient was discharged two days after the operation. Subsequently, six more teeth were removed on five different occasions without necessitating readmission to hospital.

Patient 2. — A 23 year old white male, with severe hæmophilia B was admitted to hospital for dental examination. Bleeding had first been observed after circumcision at the age of two weeks. The patient had been frequently admitted to hospital for bleeding episodes. He first attended at the age of 20 months with bleeding from the gingiva. During his several admissions he had been treated for hæmorrhage into the knees, ankles, elbows, and also in the right calf and left psoas muscles.

In 1957, after a fight, he again entered hospital suffering from severe facial wounds and fracture of the right side of the maxilla, including the loss of several teeth. Sixty-four transfusions were necessary to control this bleeding during a five week stay in hospital. The patient's oral condition was extremely poor. All the teeth were carious, some with the crowns completely destroyed to the level of the gingiva or beyond. Soft tissues were inflamed (Figure 2).

Sixteen teeth were removed during five periods of hospital residence. Bleeding was well controlled during the operations. Some bleeding occurred postoperatively following multiple extraction of maxillary teeth. This was controlled by local measures. The method for treating postoperative bleeding in hæmophiliacs

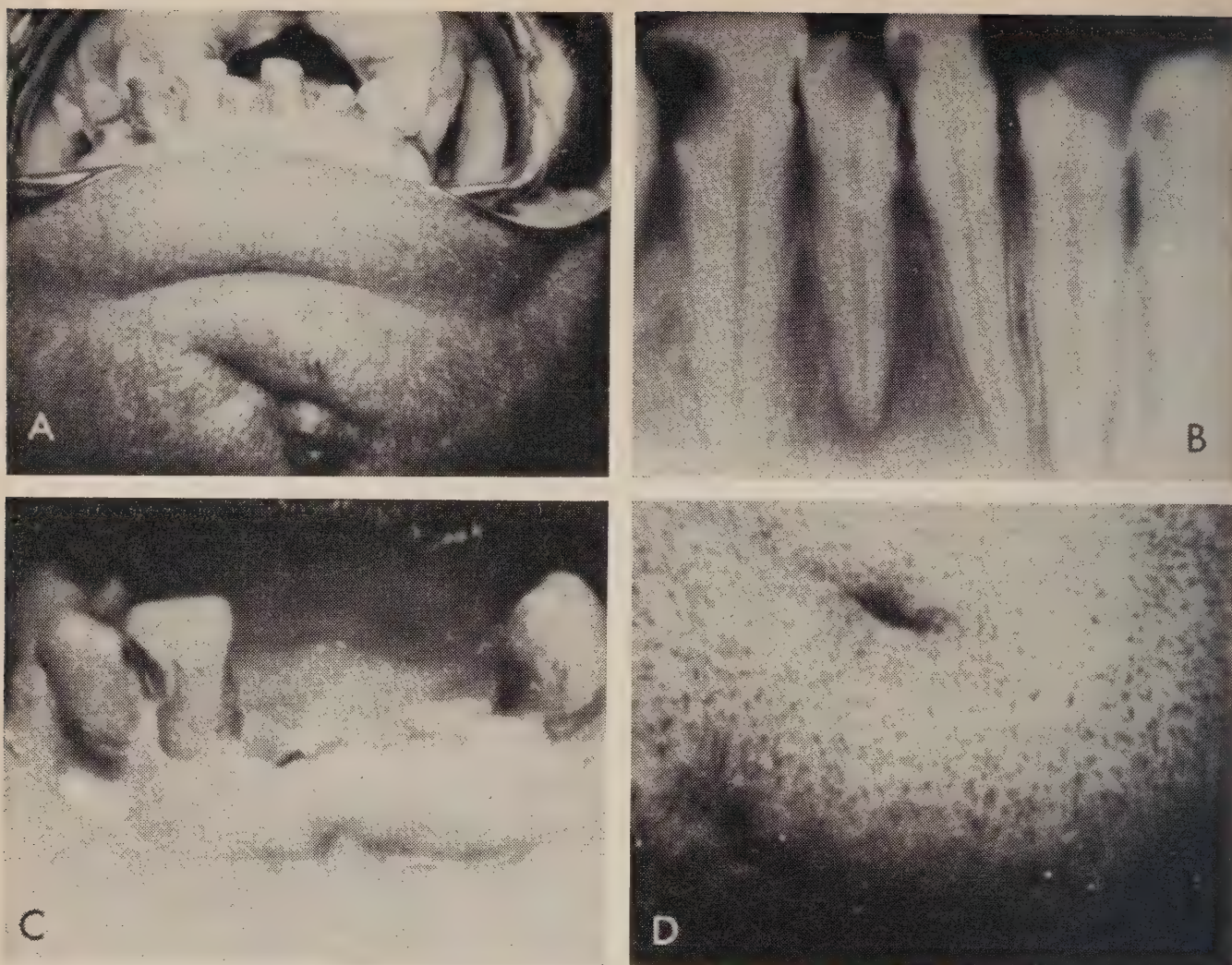


FIGURE 1 Patient 1: mild haemophilia A. A, Pre-operative condition of the teeth. Note actively draining extra-oral fistula at the base of the chin. B, Periapical radiograph showing caries in the lower incisor and periapical radiolucency in the central and left lateral incisor region. This was the source of the fistula at the base of the chin. C, Postoperative view on the fifth day after extraction. D, One month after removal of the teeth that caused the fistula. The site of the operation is well healed.

has been described in detail by Lucas et al.^{30,32}

In January 1959 the maxillary right second molar was extracted at the hospital. Twelve units of plasma and five units of blood were given to control post-operative bleeding during the 15 days the patient stayed in hospital.³³

Patient 3. — This was a 46 year old white male suffering from severe hæmophilia A with moderate to considerable arthropathy. He had been admitted to hospital several times because of hæmorrhage into the joints, mainly in the knees and ankle.

This patient had previously had five teeth extracted. The first tooth was removed by a private dentist without any precaution other than the administration of vitamin K prior to surgery. Extraction was followed by profuse bleeding which

necessitated emergency hospital admission and several transfusions. The second tooth was extracted by elastic ligature exfoliation.³⁴ Seven weeks were necessary to exfoliate the tooth completely and during that period there was continuous oozing from the irritated soft tissue around the rubber band.

The oral condition of this patient was very poor when I first examined him. Several maxillary teeth were extremely mutilated. The mandibular teeth were in satisfactory condition with the exception of a root tip which required removal.

Using the technique described, 10 teeth were removed at nine separate appointments. The patient was only admitted to hospital after the first operation. The eight other teeth were removed on an outpatient basis. As he was a good hypnotic subject, hypnosis alone was used to

obtain anaesthesia for all extractions. Bleeding was well controlled during the operations and hæmostasis was maintained throughout the entire postoperative period.

DISCUSSION

These results clearly demonstrate (1) that hæmostasis can be achieved even in a severe hæmophiliac following a dental extraction; (2) that hospital residence can be considerably shortened or made unnecessary in many cases; and (3) that transfusions of blood, plasma or plasma factors are not mandatory prior to, during or after operation.

It is essential, however, to establish very close co-operation between the dentist and the hæmatologist in order to achieve a non-hæmorrhagic dental extraction for a hæmophiliac. In the three case histories here described, the hæmatologist studied and graded the hæmophilic defects. This was done on an out-patient basis. The hæmatologist also performed a complete medical examination and interpreted the routine laboratory results to ensure that no extraneous problem could complicate the outcome of the extractions.

The dentist was responsible for the preparation of the patient's mouth prior to the removal of the teeth. This included prophylaxis and radiographic examination.

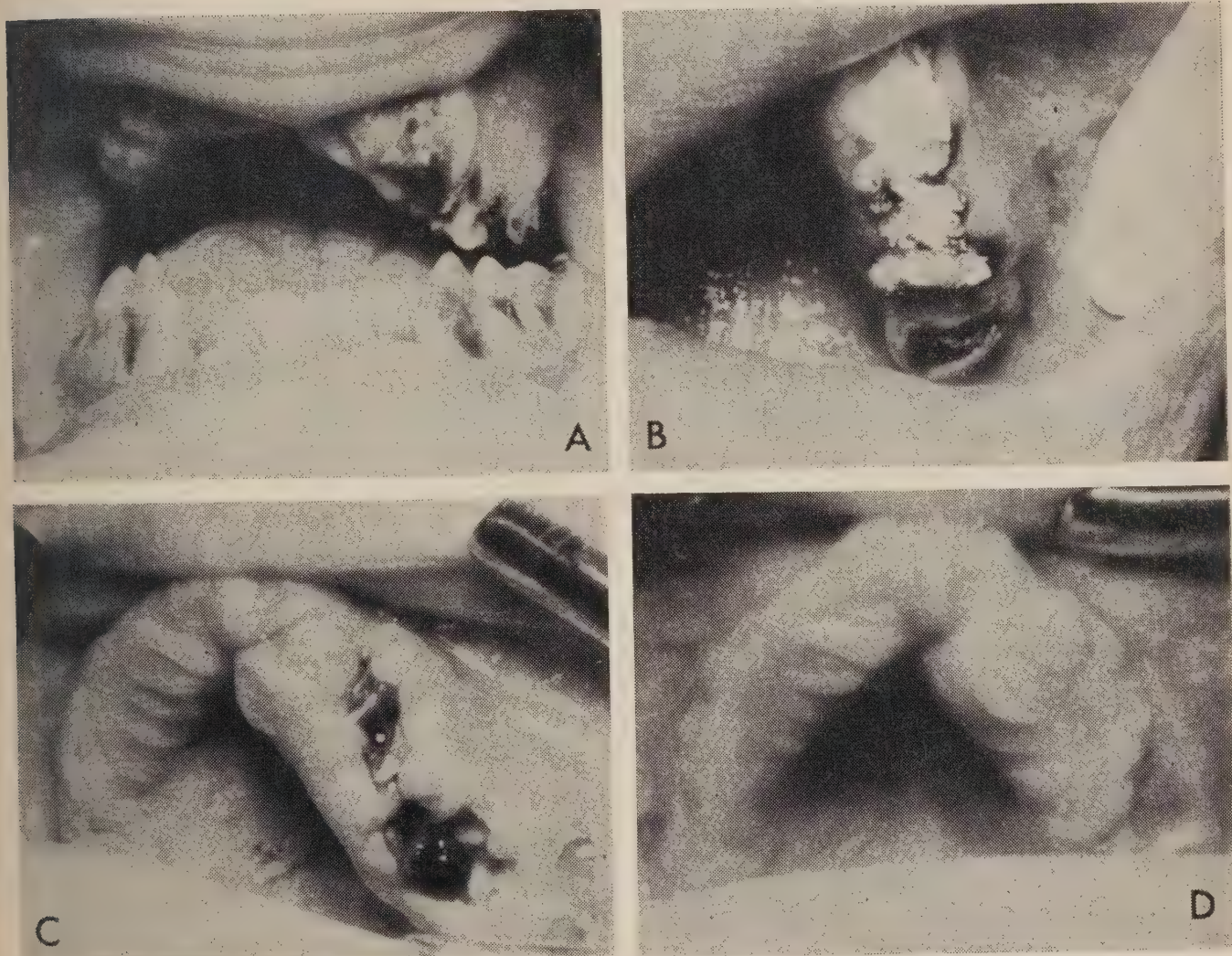


FIGURE 2 Patient 2: severe haemophilia B. A, Pre-operative view of upper cuspid, first and second bicuspid and first and third molar. Left side shows postoperative view one month later after the removal of four teeth. B, Sockets individually packed with haemostatic material immediately following extraction. Bleeding is well controlled. C, Postoperative view seven days later. D, Maxillary arch 15 days later.

Oral hygiene in each of the three patients was very poor. This had to be corrected before making any attempt to perform an extraction. Two per cent gentian violet was therefore gently applied in each patient twice daily for several days prior to operation. If this precaution is neglected in a hæmophilic considerable bleeding may occur when congested soft tissues around the extraction site are lacerated during the operation. Secondary bleeding may also result in these circumstances.

Full-mouth peripheral radiographs were taken for each patient. This permitted an evaluation of the total surgical requirements and selection of the most important or acute needs for priority attention. The radiographs revealed extensive periapical changes. Each patient accordingly received 250 mg. tetracycline every six hours for two days pre-operatively and for five days following the operation. This was a most important precaution since each individual socket was packed with absorbable hæmostatic material immediately following the extraction to prevent any possibility of bleeding.^{29,30} The infected sockets could not be drained and the infection had to be controlled in a closed field.

For the past 20 years there has been fairly general agreement about the management of dental extractions in hæmophiliacs. 'Routine' pre- and postextraction transfusions of blood and/or plasma are advocated as the only effective means of achieving hæmostasis.³⁵⁻³⁷ In fact, Kaplan et al categorically discount the value of good local hæmostasis when they state that "all local methods of control of bleeding are of no avail unless the basic clotting defect is corrected by systemic hæmotherapy."³⁸ The use of prosthetic devices to protect the extraction area has also been reported. These are used in combination with large amounts of systemic therapy to control bleeding in hæmophilia patients undergoing dental extractions.^{39,40} In addition, suturing of the extraction wound and liberal use of fresh plasma have been used for multiple extractions in hæmophiliacs.^{24,41}

Reliance on replacement therapy (large amounts of blood, blood products, human or animal antihæmophilic globulin) re-

flects the preponderance of current thought. Nevertheless, several leading authorities point out that systemic therapy, although it remains the most important treatment in hæmophilia, has its limitations.^{27,42,43} Tocantins emphasizes that "the chief problem in hæmophilic dental bleeding is the continuous maintenance of hæmostasis beginning immediately after the extraction. If measures are taken to assure this for three to five days, healing and permanent hæmostasis almost always follow. This cannot be achieved by sporadic attempts to 'correct the coagulation defect' with blood or plasma transfusion. Even when this is possible, the 'correction' is fleeting, and the patient is often 'unprotected' over sufficiently long periods of time to make him vulnerable to disruption of hæmostasis by movements of the mouth and tongue, talking, chewing, etc."²⁷ In the same vein, Van Creveld and Mochtor report that when a hæmophilic requires a dental extraction, local treatment will be sufficient, especially if the dentist is experienced and the patient is very co-operative.⁴³

Despite the existence of these reports during the last 10 years, very recent publications have failed to give adequate consideration to the basic principles of good local hæmostasis.⁴⁴⁻⁴⁸ These include (1) the avoidance or alleviation of excessive physical and psychological stress before, during and after the contemplated operation; (2) careful pre-operative preparation; and (3) postoperative protection of the traumatized area until healing is well established. Observance of these principles requires painstaking preparation and study of the individual problem, good rapport with the patient and moderate technical skill. Good hæmostasis is then assured, and the use of blood products becomes unnecessary, even for the most severely affected hæmophiliacs.

SUMMARY

Three patients with hæmophilia received multiple dental extractions. A total of 36 teeth were removed from these patients without the use of blood, plasma

or plasma products to effect haemostasis. Special consideration is given to the principles of local haemostasis and the preparation of these patients.

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1. Quick, A. J. On the nature of diagnosis of hemophilia. *Blood* 9:265, 1954.
2. Brinkhous, K. M. and Graham, J. B. Hemophilia and the hemophiloid states. *Blood* 9:254, 1954.
3. Tocantins, L. M. Demonstration of antithromboplastic activity in normal and hemophilic plasma. *Am. J. Physiol.* 139:265, 1943.
4. Idem. Hemophilic syndromes and hemophilia. *Blood* 9:281, 1954.
5. Deutsch, Erwin. *Die Hemmkörperhämophilie*. Wien, Springer, 1950.
6. Deutsch, Erwin and Mammen, F. The inactivation of plasma-thromboplastin. *Thromb. Diath. Haemorrh.* 2:324, 1958.
7. Hecht, E. Preliminary report: investigations on Tocantins' "Antithromboplastin." *Acta Physiol. Pharm. Neerl.* 2:134, 1951.
8. Idem. Wechselwirkungen zwischen fördernden und hemmenden Substanzen der Blutgerinnung. *Experientia* 10:428, 1954.
9. Hecht, E. and Shapiro, D. Sphingosine as an inhibitor of blood clotting. *Science* 125:1041, 1957.
10. Johnson, S. A. and Seegers, W. H. Studies on the plasma defect in hemophilia. *Rev. Hemat.* 9:529, 1954.
11. Idem. Platelet cofactor I activity in the hemophilias. In K. M. Brinkhous, ed. *Hemophilia and hemophiloid diseases*. Chapel Hill, University of North Carolina Press, 1957.
12. Mammen, E. Investigations on the nature of hemophilia A. *Thromb. Diath. Haemorrh.* 9:30, 1963.
13. Idem. Inhibitors and Factor VIII. International Conference on Hemophilia, Washington, D.C., 1963. K. M. Brinkhous, ed. *The hemophilias: international symposium*. Chapel Hill, University of North Carolina Press, 1964.
14. Idem. The pathogenesis of hemophilia A. *Federation Proceedings* 22:163, 1963.
15. Seegers, W. H. A theoretical consideration of the blood clotting mechanisms in hemophilia. *Schweiz. Med. Wschr.* 84:781, 1954.
16. Idem. *Prothrombin*. Cambridge, Mass., Harvard University Press, 1962.
17. Spaet, T. H. and Garner, E. S. Studies on the storage liability of human antihemophilic factor. *J. Lab. Clin. Med.* 46:111, 1955.
18. De la Chapelle, A., Ikkala, E. and Nevanlinna, H. R. Haemophilia in a girl. A probable exception from sex-linked recessive inheritance. *Lancet* 2:578, 1961.
19. Lucas, O. N. and Geisler, P. H. Dental extraction in a haemophilia 'A' female. A case report. *Brit. J. of Oral Surg.* 2:179, 1965.
20. Tocantins, L. M., Carroll, R. and Holburn, R. R. Effect of direct transfusion of hemophilia 'A' blood of various grades of severity into normal and thrombocytopenic recipients. K. M. Brinkhous, ed. *Haemophilia and other hemorrhagic states*. Chapel Hill, University of North Carolina Press, 1959.
21. Byrd, D. L. Management of hemophilia, with a case presentation. *Oral Surg., Oral Med. & Oral Path.* 4:35, 1951.
22. Fleuchaus, P. T. Prolonged hemorrhage following extraction in a hemophilic. *Oral Surg., Oral Med. & Oral Path.* 7:720, 1954.
23. Zegarelli, E. V., Kutscher, A. H., Dicerbo, Joseph and Slaughter, Terry. Cost of dental care for hemophilic patients. *J. Oral Surg., Anes. & Hosp. D. Serv.* 20:316, 1962.
24. Winstock, D. and Ingram, G. I. C. Dental extractions in haemophilia: plasma therapy without dental splint. *Brit. M. J.* 1:719, 1961.
25. MacFarlane, R. G., Mallam, P. C., Witts, L. J. et al. Surgery in haemophilia; the use of animal antihemophilic globulin and human plasma in thirteen cases. *Lancet* 2:251, 1957.
26. Herfert, O. Intra-osseous infiltration of thrombin to arrest bleeding in cases of haemorrhagic diathesis including haemophilia. *Internat. D. J.* 13:649, 1963.
27. Lucas, O. N., Carroll, R. T., Finkelman, A. and Tocantins, L. M. Tooth extractions in hemophilia. Control of bleeding without use of blood plasma or plasma fractions. *Thrombosis et Diathesis Hemorrhagica* 8:208, 1962.
28. Lucas, O. N., Finkelman, A. and Tocantins, L. M. Management of tooth extractions in hemophiliacs by the combined use of hypnotic suggestion, protective splints and packing of sockets. *J. Oral Surg., Anes. & Hosp. D. Serv.* 20:488, 1962.
29. Lucas, O. N. and Tocantins, L. M. Problems in hemostasis in hemophilic patients undergoing dental extraction. *Ann. New York Acad. Sc.* 115:470, Art. 1, 1964.
30. Idem. Management of dental extractions in hemophilia A and B. International Conference on "The hemophilia." K. M. Brinkhous, ed. Chapel Hill, University of North Carolina Press, 1964.
31. Lucas, O. N. Dental extractions in the hemophilic: control of the emotional factors by hypnosis. *Amer. J. Clin. Hypn.* 7:301, 1965.
32. Idem. Use of oxidized regenerated cellulose saturated with thrombin-NaHCO₃ for hemostasis in exodontia. *J. Canad. D. A.* 32:146, 1966.
33. Finkelman, Aaron. Care of the hemophilic patient in dental surgery. *Oral Surg., Oral Med. & Oral Path.* 12:542, 1959.
34. Dalitsch, W. W. Removal of teeth by exfoliation with elastic ligatures. *D. Digest* 45:310, 1939.
35. Deutsch, E. Treatment of surgical complications in hemophilia. National Hemophilia Foundation. In K. M. Brinkhous, ed. *Hemophilia and hemophiloid diseases*. Chapel Hill, University of North Carolina Press, 1957.
36. Levine, P. Dental management of the hemophilic. National Hemophilia Foundation. In K. M. Brinkhous, ed. *Hemophilia and hemophiloid diseases*. Chapel Hill, University of North Carolina Press, 1957.
37. Findlay, I. A. and Nicholl, B. Tooth extraction in patients with hemophilia. *Oral Surg., Oral Med. & Oral Path.* 13:1167, 1960.
38. Kaplan, R. I., Werther, Raymond, Carson, I. H. and Wolman, I. J. Dental care of the hemophilic patient. *D. Clin. N. America* p. 491, 1960.
39. Wishart, C., Smith, C. A., Honey, G. E. and Taylor, K. B. Dental extraction in haemophilia. *Lancet* 2:363, 1957.
40. McIntyre, H., Nour-Eldin, F., Israels, M. C. G. and Wilkinson, J. F. Dental extractions in patients with haemophilia and Christmas Disease. *Lancet* 2:642, 1959.
41. Linenberg, W. B. and Harpole, H. J. Full-mouth extractions in a hemophilic patient. *Oral Surg., Oral Med. & Oral Path.* 14:782, 1961.
42. MacFarlane, R. G. and Biggs, R. The treatment of hemophilia patients with animal antihemophilia globulin. In K. M. Brinkhous, ed. *Hemophilia and other hemorrhagic states*. Chapel Hill, University of North Carolina Press, 1959.
43. Van Creveld, S. and Mochtor, I. A. Management of hemophilia. In K. M. Brinkhous, ed. *Hemophilia and other hemorrhagic states*. Chapel Hill, University of North Carolina Press, 1959.
44. Meyer, Irving. Coagulation studies in hemophiloid diseases; their importance in treatment planning. *J. Oral Surg., Anes. & Hosp. D. Serv.* 22:324, 1964.
45. Wishart, Colin. Oral surgery in the hemorrhagic states. *J. Oral Surg., Anes. & Hosp. D. Serv.* 22:178, 1964.
46. Marlette, R. H. and Gerhard, R. C. Reconstituted human fibrinogen in the treatment of hemophilia. Report of a case. *Oral Surg., Oral Med. & Oral Path.* 17:691, 1964.
47. McIntyre, H. Dental extractions in patients with hemophilia syndrome; a method of local management. *Oral Surg., Oral Med. & Oral Path.* 19:163, 1965.
48. Spouge, J. D. Hemostasis in dentistry, with special reference to hemocoagulation. III. Principles underlying clinical hemostatic practices in patients with faulty coagulation. *Oral Surg., Oral Med. & Oral Path.* 18:701, 1964.

Faculty of Dentistry,
University of Alberta

1963 Survey of Dental Practice

11. 'Busyness' of dental practice

Bureau of Economic Research

The Survey of Dental Practice questionnaire asked dentists which of four statements best described how busy their practices were in 1963:

1. Too busy to treat all people requesting appointments;
2. All people requesting appointments received them but you felt more rushed and/or worked more hours than you would have liked;
3. You provided dental care for all who requested appointments, you had enough but not too many patients;
4. You were not busy enough, you would like to have had more patients.

This was the first time that this question had been included in a CDA Survey of Dental Practice.

HOW BUSY ARE CANADIAN DENTISTS?

Thirty-six per cent of all dentists answering this question replied that they were too busy to treat all people requesting appointments. Another 24 per cent said they felt more rushed and/or worked more hours than they wished. Only nine per cent of the responding dentists com-

Enquête de 1963 sur la profession dentaire

11. 'L'affairement' des dentistes

Bureau des recherches économiques

Le questionnaire de l'Enquête de 1963 sur la profession dentaire demandait aux dentistes de se ranger dans une des quatre catégories d'affairement suivantes:

1. Vous êtes trop occupé pour traiter toutes les personnes qui sollicitent un rendez-vous;
2. Vous accordez un rendez-vous à toutes les personnes qui en sollicitent mais vous êtes trop bousculé et/ou vous travaillez plus que vous ne le voudriez;
3. Vous traitez toutes les personnes qui sollicitent un rendez-vous, vous avez assez de patients sans en avoir trop;
4. Vous n'êtes pas assez occupé et souhaiteriez avoir plus de patients.

C'était la première fois que cette question figurait dans une enquête de l'ADC sur la profession dentaire.

QUEL EST L'AFFAIREMENT DES DENTISTES CANADIENS?

Trente-six pour cent des dentistes qui ont répondu à cette question se déclarent trop occupés pour traiter toutes les personnes qui demandent un rendez-vous. Vingt-quatre pour cent se trouvent plus

plained that they were not as busy as they would have liked. The remaining 31 per cent of the dentists claimed they provided dental care for all requesting appointments and had neither too few nor too many patients.

SASKATCHEWAN DENTISTS BUSIEST

The provinces with the highest percentages of dentists reporting that they were too busy were Saskatchewan, Prince Edward Island, Nova Scotia, Ontario and Manitoba in that order. Quebec, Newfoundland and New Brunswick all had relatively high proportions of dentists reporting that they were not busy enough — 17 per cent in Quebec, 13 per cent in Newfoundland and 11 per cent in New Brunswick.

There was no correlation between provincial population-per-dentist figures and the percentages of dentists reporting they were either too busy or not busy enough. In several provinces with comparatively poor dentist/population ratios, there was a considerable unused capacity in the provision of dental services. For example, of the three provinces which had the highest proportions of dentists who were not busy enough, Newfoundland and New Brunswick had the most people per dentist in 1963 while Quebec's figure was also above the national average. The unreliability of dentist/population ratios as the sole measure of the number of dentists a province would utilize under present practice conditions is, therefore, evident. Many other factors must be taken into consideration.

FEWER DENTISTS IN LARGEST CITIES ARE TOO BUSY

The highest percentage of dentists who had too many demands for their services were found in cities of less than 100,000 people. Seventy-three per cent of the dentists who practised in communities of under 1,000 reported they were too busy. Only 50 per cent of the dentists in the largest cities made this complaint. Cities of over 100,000 inhabitants had the lowest

bousculés et/ou travaillent plus qu'ils ne le voudraient. Neuf pour cent seulement se plaignent de ne pas être aussi occupés qu'ils le souhaiteraient. Enfin 31 pour cent des dentistes répondent qu'ils traitent toutes les personnes demandant un rendez-vous et qu'ils n'ont ni trop de patients ni pas assez.

LES DENTISTES LES PLUS OCCUPÉS SONT CEUX DE LA SASKATCHEWAN

Les provinces qui ont les plus forts pourcentages de dentistes se trouvant trop occupés sont, dans l'ordre: la Saskatchewan, l'Île-du-Prince Édouard, la Nouvelle-Écosse, l'Ontario et le Manitoba. Le Québec, Terre-Neuve et le Nouveau-Brunswick ont une proportion assez forte de dentistes qui ne se trouvent pas assez occupés — 17 pour cent au Québec, 13 pour cent à Terre-Neuve et 11 pour cent au Nouveau-Brunswick.

Il n'y a aucune corrélation entre le nombre d'habitants par dentiste dans une province et les pourcentages de dentistes qui se déclarent trop occupés ou pas assez. Dans plusieurs provinces, dont le quotient dentiste/nombre d'habitants est assez pauvre, il y a une proportion considérable de dentistes qui ne sont pas assez occupés. Par exemple, parmi les provinces ayant les plus forts pourcentages de dentistes qui ne sont pas assez occupés, Terre-Neuve et le Nouveau-Brunswick ont le plus gros nombre d'habitants par dentiste; le chiffre du Québec est lui aussi supérieur à la moyenne nationale. Il est donc évident que l'on ne peut pas se baser seulement sur le quotient dentiste/nombre d'habitants pour déterminer le nombre de dentistes dont une province a besoin dans les conditions actuelles de pratique. Il faut tenir compte de plusieurs autres facteurs.

IL Y A MOINS DE DENTISTES TROP DANS LES TRÈS GRANDES VILLES

Les plus hauts pourcentages de dentistes qui ont trop de patients se trouvent dans les villes de moins de 100,000 habitants. Soixante-treize pour cent des den-

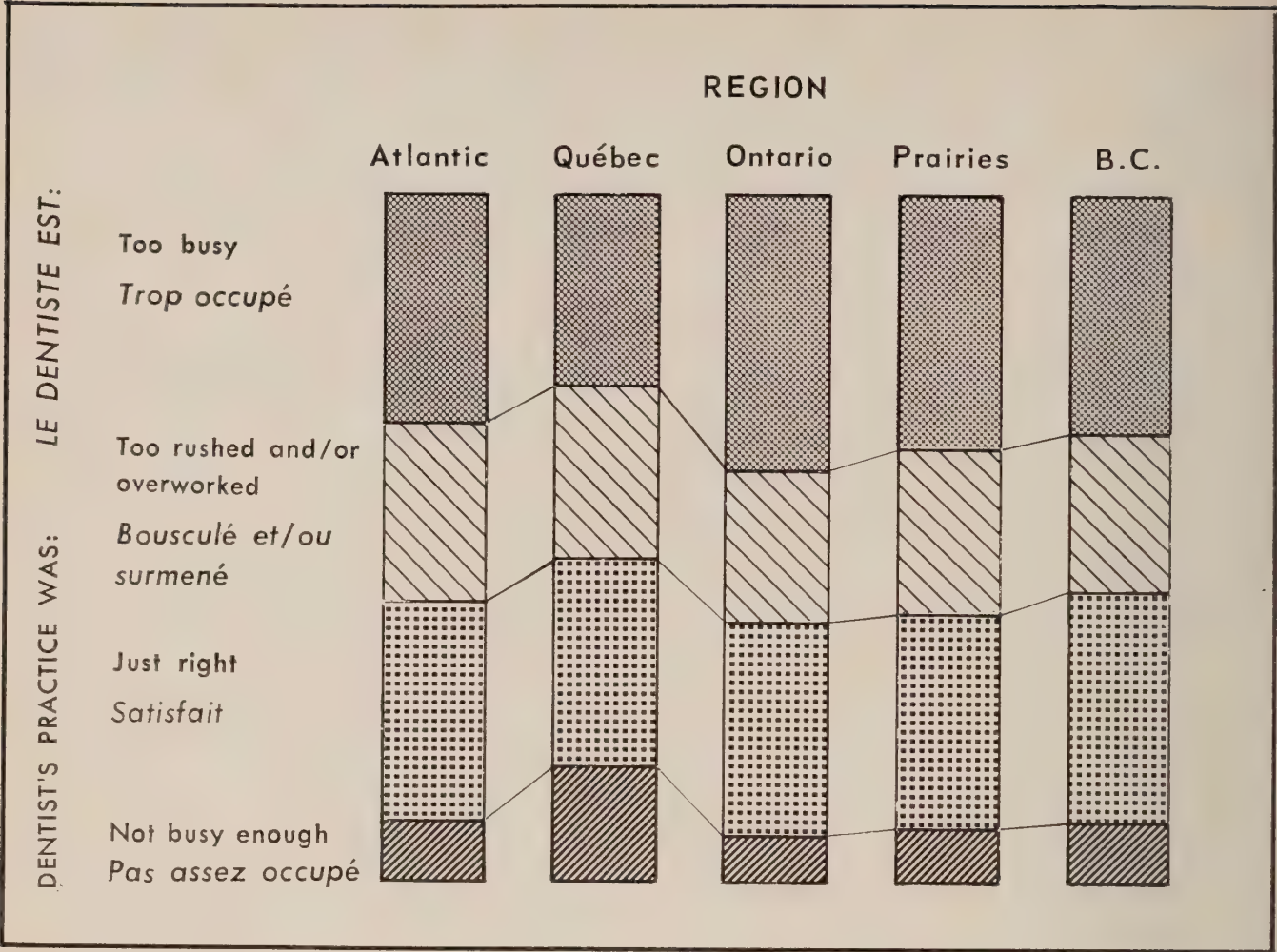


FIGURE 1 Regional variations in 'busyness' • Différences d'affairement par région.

percentages of dentists who were 'too busy' but the highest proportions of dentists whose practices were 'just right.' tistes qui exercent dans des localités de moins de 1,000 habitants déclarent qu'ils sont trop occupés, alors qu'il y en a

TABLE 1 Percentage distribution of dentists by extent of 'busyness' • Pourcentages des dentistes par catégories d'affairement.

Region	Too busy	Rushed or overworked	Just right	Not busy enough	Région
	Trop occupés	Bousculés ou surmenés	Juste assez occupés	Pas assez occupés	
	%	%	%	%	
Atlantic	33.6	25.6	32.0	8.8	Provinces maritimes
Quebec	28.2	25.6	29.6	16.6	Québec
Ontario	39.7	22.6	30.7	7.0	Ontario
Prairie	37.3	23.9	31.2	7.6	Provinces de l'ouest
British Columbia	33.6	23.2	34.5	8.7	Colombie britannique
Canada	35.8	23.6	31.4	9.2	Canada

Thirteen per cent of the dentists in cities of over 500,000 reported that they did not have enough patients. In the smaller cities, the percentages of dentists who would have liked to have had more patients were lower.

HOW 'BUSYNESS' VARIES IN RELATION TO OTHER CHARACTERISTICS

Age.—Only five per cent of the dentists aged 40 to 44 years claimed they were not busy enough. Percentages for other age groups were higher.

The percentage of dentists who were too busy rose from 39 per cent of the 25 to 29 year old dentists to 68 per cent of dentists 15 years older. This percentage then declined and was well under 60 per cent of those dentists over 60.

Year of Graduation.—About one quarter of the dentists who had been in practice less than three years reported that they would have liked to have been busier. This proportion decreased as the length of time the dentist had been in practice increased until it reached a low of six per cent recorded by dentists graduating between 1949 and 1953.

Organization of Practice.—More dentists in partnerships than in solo or cost-sharing practices reported that their practices

seulement 50 pour cent dans les très grandes villes. Les villes qui dépassent 100,000 habitants ont les plus bas pourcentages de dentistes 'trop occupés' mais les plus fortes proportions de dentistes qui sont juste assez occupés.

Dans les villes de plus de 500,000 habitants 13 pour cent des dentistes déclarent qu'ils n'ont pas assez de patients. Dans les villes plus petites, le pourcentage de dentistes qui aimeraient avoir plus de patients est plus faible.

AUTRES FACTEURS INFLUANT SUR L'AFFAIREMENT

Age.—Cinq pour cent seulement des dentistes âges de 40 à 44 ans ne se trouvent pas assez occupés. Les pourcentages sont plus forts dans les autres groupes d'âge.

Le pourcentage des dentistes qui sont trop occupés grimpe de 39 pour cent chez les dentistes de 25 à 29 ans jusqu'à 68 pour cent chez les dentistes qui ont 15 ans de plus. Ensuite il diminue et devient inférieur à 60 pour cent chez les dentistes qui ont plus de 60 ans.

Année de graduation.— Environ un quart des dentistes qui exercent depuis moins de trois ans déclarent qu'ils aimeraient être plus occupés. Cette proportion diminue à mesure que les années d'exercice augmentent, jusqu'à ce qu'elle atteigne son niveau le plus bas (6 pour cent) chez les dentistes qui ont gradué entre 1949 et 1953.

TABLE 2 The more full-time employees a dentist has, the more likely he is to be too busy • Les dentistes sont d'autant plus occupés qu'ils ont plus d'employés à plein temps.

No. of full-time employees	Too busy	Not busy enough
Employés à plein temps	Trop occupés	Pas assez occupés
0	39%	22%
1	59%	10%
2+	71%	1%

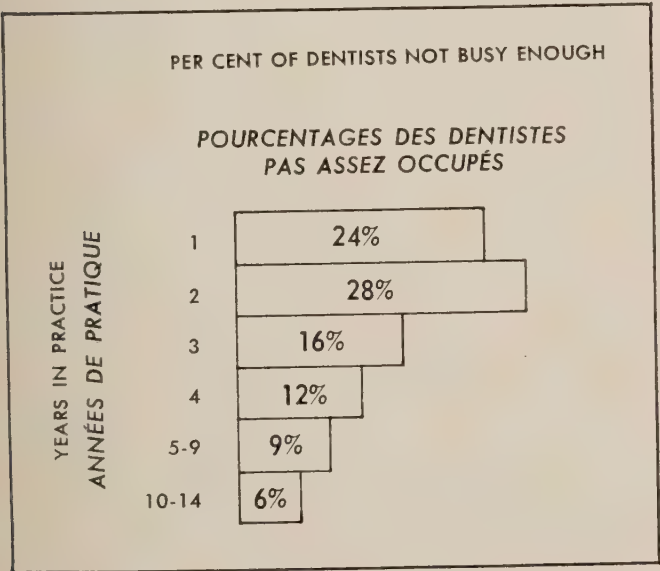


FIGURE 2 Earliest years in practice are the least busy • Les premières années de pratique sont les moins actives.

were 'just right.' Dentists who shared costs were busier than other dentists.

Type of Practice.—Eighteen per cent of the oral surgeons and 15 per cent of the orthodontists reporting said that their practices were not busy enough. Only eight per cent of the other specialists said they would like to have been busier. One half of the periodontists, 55 per cent of the oral surgeons and 44 per cent of the orthodontists thought they had enough but not too many patients.

Smaller percentages of specialists than of general practitioners thought that they had too many patients. Forty-two per cent each of the orthodontists and the periodontists reported that they were either too busy to treat all people requesting appointments or felt they were too rushed and overworked. Only 27 per cent of the oral surgeons made these complaints.

Number of Employees.—The percentages of dentists who would like to have had more patients was much smaller among those dentists who employed one, two or more full-time employees than among those dentists who worked without auxiliaries.

Over 20 per cent of the dentists who had either no employees or only one part-time employee said that they were not busy enough. This is probably one very important reason why these dentists chose to work with little or no office assistance. The highest percentage of dentists reporting that their patient loads were adequate but not too heavy was recorded by this same group. There would seem to be little desire on the part of these dentists to hire personnel and expand their practices. However, close to 40 per cent of this group reported that they had too many patients. These dentists are very likely to be future employers of dental assistants.

Organisation du cabinet.—Les dentistes associés sont plus nombreux à être 'juste assez occupés' que ceux qui exercent seuls ou ceux qui partagent leurs frais. Les dentistes qui partagent leurs frais sont plus occupés que les autres.

Genre de pratique.—Dix-huit pour cent des chirurgiens buccaux et 15 pour cent des orthodontistes déclarent qu'ils ne sont pas assez occupés. Huit pour cent seulement des autres spécialistes auraient aimé être plus occupés. La moitié des périodontistes, 55 pour cent des chirurgiens buccaux et 44 pour cent des orthodontistes trouvent qu'ils ont assez de patients mais pas trop.

Les pourcentages de spécialistes qui ont trop de patients sont plus faibles que ceux des omnipraticiens. Quarante-deux pour cent d'orthodontistes et autant de périodontistes se déclarent trop occupés pour traiter toutes les personnes qui sollicitent un rendez-vous ou bien se trouvent bousculés et surmenés. Seulement 27 pour cent des chirurgiens buccaux sont dans ce cas.

Nombre d'employés.—Le pourcentage de dentistes qui aimeraient avoir plus de patients est beaucoup plus faible chez les dentistes qui ont un, ou deux employés à plein temps, ou même plus, que chez les dentistes qui travaillent sans auxiliaires.

Plus de 20 pour cent des dentistes qui n'ont pas d'employé ou qui ont un seul employé à temps partiel trouvent qu'ils ne sont pas assez occupés. Sans doute est-ce en grande partie pour cette raison qu'ils préfèrent effectuer leur travail de bureau avec peu d'aide ou sans aide du tout. Le plus fort pourcentage de dentistes satisfaits de leur nombre de patients se trouve dans ce même groupe. Il semble que ces dentistes soient peu désireux d'engager du personnel et d'agrandir leur cabinet. Cependant près de 40 pour cent des dentistes de ce groupe déclarent qu'ils ont trop de patients. Ceux-ci seront probablement amenés à engager des assistantes dentaires.

This report is condensed from the *Survey of Dental Practice, 1963* published by the Bureau of Economic Research.

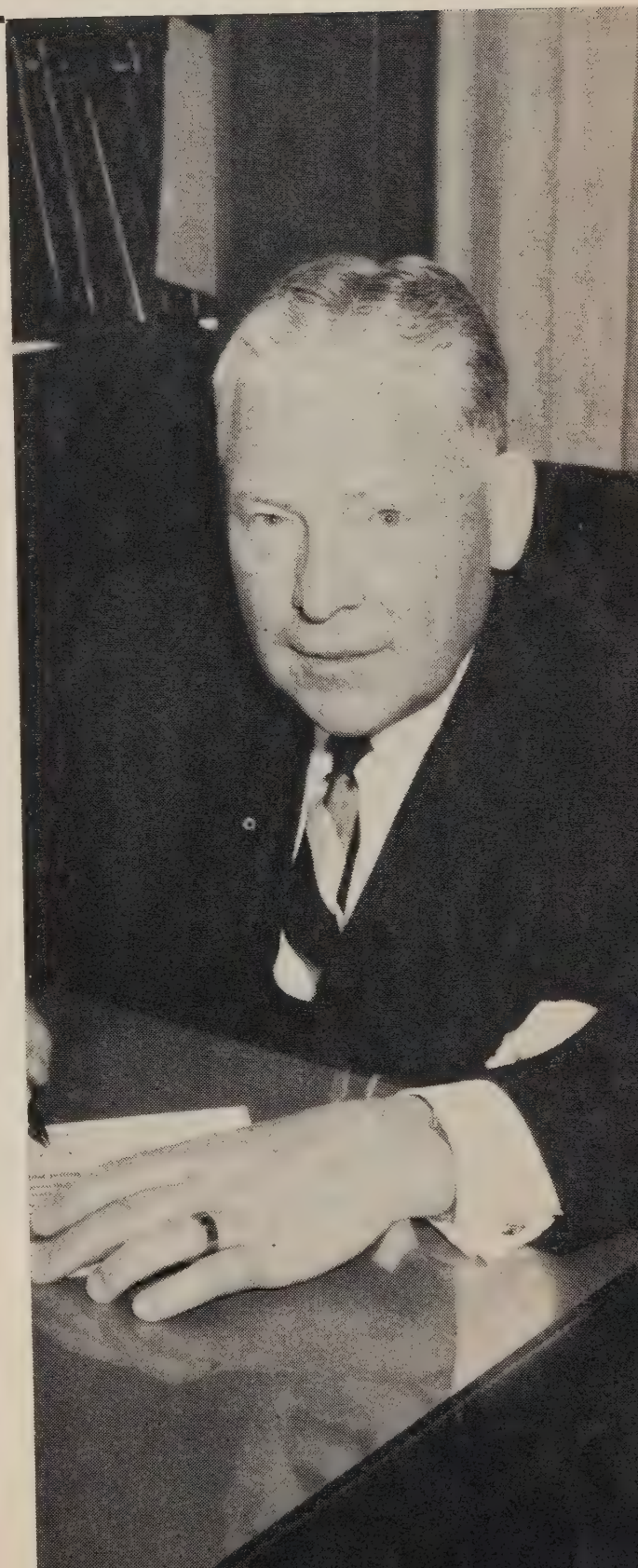
Ce communiqué est un résumé de l'*Enquête de 1963 sur la profession dentaire*, publiée par le Bureau des recherches économiques.

Le Dr Coupland devient président de l'ADC

Quatre cents dentistes de tout le pays se sont réunis à Halifax, le lundi, 13 juin, à l'occasion du soixante-cinquième congrès annuel de l'Association dentaire canadienne. Le programme scientifique très élaboré comprenait des tables rondes, des conférences, des cliniques, des cliniques de table, des films et des exhibits scientifiques et techniques. Le tout préparé de façon à expliquer les derniers progrès de l'art dentaire. La réunion annuelle du Conseil des Gouverneurs a été tenue du 8 au 11 juin, immédiatement avant le congrès. Les membres du conseil ont étudié les problèmes de santé dentaire de tout le pays et ont déterminé les politiques que suivra l'association dans l'année qui commence.

Le docteur J. P. Coupland d'Ottawa est devenu le 46ème président de l'Association dentaire canadienne. Il succède au docteur P. S. Christie de Halifax. C'est un ancien président, le docteur P. G. Anderson de Toronto, qui a présidé à la cérémonie d'intronisation tenue au cours du déjeuner du 13 juin.

Né à St. Mary's en Ontario, le docteur Coupland a obtenu son DDS de l'Université de Toronto en 1930. Il a été membre du Corps dentaire royal canadien de 1942 à 1945. Le Dr Coupland a reçu son certificat de spécialiste en chirurgie buccale en 1948 et il fait partie du personnel du Ottawa Civic Hospital. Ancien président de l'Eastern Ontario Dental Association,





En haut: à la table de conférence du Conseil exécutif à Halifax, de gauche à droite W. P. Munsie de Vancouver; O. J. Yule de Toronto; H. R. MacLean d'Edmonton; le président J. P. Coupland et le secrétaire W. G. McIntosh.



A gauche: au cours d'une séance de comité H. L. Mussells de Montréal, et H. R. MacLean d'Edmonton, écoutent attentivement le point de vue de la Colombie britannique qu'explique L. E. English.



Le docteur Christie prononce son discours présidentiel au cours du déjeuner de l'ADC le 13 juin.



Trois membres de l'exécutif de l'Association dentaire canadienne. De gauche à droite, le président J. P. Coupland d'Ottawa; le secrétaire W. G. McIntosh de Toronto; et le président sortant-de-charge P. S. Christie de Halifax.

caux et de l'American Society of Oral Surgeons.

Le docteur W. P. Munsie de Vancouver a été choisi comme président-élu de l'association. Membre du Conseil Exécutif, le Dr Munsie représente aussi le College of Dental Surgeons of British Columbia au Conseil des Gouverneurs depuis plusieurs années.

Les autres membres du Conseil Exécutif seront: le Dr W. G. Bruce de Kincardine, Ontario; le Dr H. R. MacLean d'Edmonton; le Dr Henri Brouillet de Montréal; et le Dr O. J. Yule de Toronto.

Les présidents des différents conseils et comités sont le Dr J. P. Coupland d'Ottawa, au Conseil Exécutif; le Dr H. M. Cline d'Halifax, au Conseil de la constitution et des règlements; le Dr James McCutcheon de Montréal, au Conseil d'enseignement; le Dr H. N. Beach d'Ottawa, au Conseil d'éthique; le Dr J. M. Phillips d'Oshawa, Ontario, au Conseil du journalisme; le Dr A. H. Crowson d'Ottawa, au Conseil de législation; le Dr A. R. S. Gray de Calgary, au Conseil d'hygiène publique; le Dr R. M. Grainger de Toronto, au Conseil de la recherche; le Dr G. C. Swann de Calgary, au Comité des services auxiliaires; le Dr R. G. Ellis de Toronto, au Comité du congrès de 1967; le Dr H. G. Pettapiece de Parksville, Colombie britannique, au Comité des services dentaires; le Dr G. V. Fisk de Toronto, au Comité de l'immeuble des quartiers généraux; le Dr A. S. Brown de Toronto, au Comité des services hospitaliers; le Dr W. P. Munsie de Vancouver, au Comité des nominations; et le Dr O. J. Yule de Toronto, au Comité des spécialistes et de la spécialisation.

On a conféré le titre de membres honoraires de l'Association dentaire canadienne au Dr Heath McIntyre de Charlottetown, et au Dr A. J. Cormier de Moncton.

Les préparatifs pour le congrès ont été faits par les dentistes de Halifax, sous la direction du Dr W. B. Coleman, président du congrès.

Décisions du Conseil des Gouverneurs

A la séance inaugurale les membres du Conseil des Gouverneurs et les dentistes

présents ont observé une minute de silence en souvenir des membres de l'Association qui sont décédés durant l'année.

MESSAGE DU PRESIDENT

Le président Christie a ensuite donné lecture de son rapport annuel. Il a fait allusion à la possibilité d'une intervention gouvernementale qui viserait à fournir des soins dentaires à la population et il a invité l'Association à préparer un plan qui lui soit propre et qui offre des solutions de rechange aux caractéristiques indésirables que pourrait contenir le programme gouvernemental. A moins de préparer d'avance un tel plan, nous risquons fort d'avoir à improviser à la dernière minute des solutions de rechange qui pourraient laisser à désirer, a dit le Dr Christie.

Le président a aussi invité les membres corporatifs à faire part aux ministres provinciaux de la santé des besoins de la profession de façon à ce que chacun puisse recevoir sa part du fonds de Ressources de la santé de \$500 millions qu'Ottawa vient d'établir.

En conclusion le Dr Christie a fait remarquer que l'Association arrive difficilement à répondre aux besoins de tous ses membres car son personnel et son budget sont limités. Il a prédit que l'Association aura bientôt besoin d'augmenter son revenu pour faire face aux dépenses courantes qui dépassent actuellement le revenu ordinaire de façon alarmante. Il faut absolument augmenter le personnel administratif si l'on veut que les bureaux de l'Association puissent faire le travail que leur demande le conseil des gouverneurs.

Le Conseil des Gouverneurs a ensuite étudié les rapports qu'ont soumis chacun des conseils, comités et sections de l'Association et a pris les décisions suivantes:

PERSONNEL AUXILIAIRE

Le conseil:

a demandé qu'on établisse le plus vite possible un comité indépendant qui étudie la totalité du problème des services auxi-

liaires dentaires (en accord avec la section 89 de la déclaration de l'ADC relative aux recommandations de la Commission Hall);

a demandé au Conseil d'enseignement d'établir les normes minimum du curriculum d'un programme d'études pour assistantes dentaires;

a demandé au Conseil d'enseignement d'établir les normes minimum nécessaires à l'approbation d'une école pour assistantes dentaires et à l'approbation de cours de perfectionnement pour assistantes dentaires, tels qu'en organisent les sociétés dentaires locales;

a encouragé les sociétés dentaires locales et provinciales à mettre sur pied des cours pour assistantes dentaires, conformément aux normes minimum que doit formuler le conseil d'enseignement;

a autorisé la tenue d'une conférence qui doit étudier la possibilité de former une association nationale de techniciens dentaires, d'un système d'accréditation et d'entraînement, les possibilités d'améliorer la formation et le niveau économique des techniciens dentaires, l'accréditation des laboratoires dentaires, et l'amélioration de la co-opération entre la profession dentaire et ses techniciens;

a recommandé qu'au moins une des facultés dentaires étudie le problème des responsabilités du personnel auxiliaire;

a suggéré aux membres corporatifs de tenter de se mettre d'accord pour faire disparaître les différences qui existent dans les diverses provinces relativement au rôle que peuvent jouer les hygiénistes;

a demandé au Conseil d'enseignement de voir s'il est nécessaire de mettre sur pied des cours en hygiène dentaire qui donneraient des diplômes;

a demandé au Comité des services auxiliaires de voir dans quelle mesure on pourrait confier des responsabilités plus étendues aux hygiénistes dentaires;

enfin, il a demandé au Conseil Exécutif de reviser la déclaration de politique de l'ADC sur la dissémination des services dentaires au Canada.

PRATIQUE ILLEGALE

Le conseil:

a demandé aux membres corporatifs

d'amasser les documents nécessaires pour exprimer l'opinion de la profession à ce sujet. Il a demandé que ces renseignements soient transmis au public, aux gouvernements et aux législateurs;

a demandé aux membres corporatifs d'étudier la possibilité d'établir des cliniques de prothèses.

SPÉCIALITÉS ET SECTIONS

Le conseil a aussi:

demandé au Collège royal des chirurgiens-dentistes du Canada de reviser sa politique qui empêche de devenir fellows les dentistes qui sont qualifiés dans des domaines qui ne sont pas actuellement reconnus comme spécialités;

a demandé au Conseil Exécutif d'étudier la possibilité d'établir des contacts entre l'Association dentaire canadienne et le Collège royal des chirurgiens-dentistes du Canada;

a reconnu l'endodontie comme spécialité et les endodontistes comme spécialistes;

a reconnu l'Académie canadienne de dentisterie restaurative et l'Académie canadienne d'endodontie comme nouvelles sections de l'Association dentaire canadienne; et

a remis à plus tard la reconnaissance de spécialités additionnelles de façon à permettre au Comité des spécialistes et de la spécialisation de reviser sa politique actuelle sur les spécialités.

BUDGET ET FINANCES

Le conseil:

a approuvé un budget de \$262,310 pour 1967;

a approuvé une nouvelle politique relativement aux octrois de provenance commerciale;

a demandé qu'en temps opportun le secrétaire reprenne ses négociations avec le Ministère du Revenu relativement aux déductions d'impôt permises à l'occasion d'un cours post-scolaire;

a autorisé l'acquisition de certaines valeurs et a autorisé l'investissement dans un fonds mutuel reconnu d'un montant pouvant aller jusqu'à 25 pour cent du

fonds de réserve;

a demandé au Conseil Exécutif de mettre au point une déclaration de principe relativement au fonds de réserve.

SERVICES ET RESSOURCES DENTAIRES

Le conseil:

a demandé au Comité des services dentaires de mettre au point un programme de santé dentaire pour les enfants; et

a demandé aux membres corporatifs d'établir des comités dans le but "d'établir des contacts et d'aviser les ministres provinciaux de la santé des besoins de la profession dentaire relativement au . . . fonds des Ressources de la santé."

DENTISTES ÉTRANGERS

Le conseil:

a demandé au Conseil d'enseignement d'étudier la possibilité de mettre au point des examens s'adressant aux diplômés des facultés dentaires étrangères qui ne sont pas approuvées par l'ADC. Le but de ce projet serait de déterminer le niveau académique vers lequel doit tendre celui qui veut entrer dans une faculté dentaire canadienne.

ASSURANCE

Le conseil:

a rendu le Comité d'assurance commerciale responsable des programmes d'assurance et de retraite qu'approuve l'ADC;

a demandé qu'à l'avenir les rapports de l'administrateur des programmes d'assurance et de retraite qu'approuve l'ADC soient présentés au comité d'assurance commerciale; et

a demandé à ce comité de préparer une déclaration de principe relativement à la participation de l'Association aux programmes d'assurance de ses membres. Le conseil a aussi demandé que cette déclaration pose des jalons relativement aux programmes individuels et aux programmes de groupes et qu'il établisse les

relations qui doivent exister entre l'Association, les compagnies d'assurances, les courtiers et les percepteurs de primes.

AUTRES DECISIONS

Le conseil:

a approuvé le principe d'un nouveau schéma pour les réunions annuelles du Conseil des Gouverneurs;

a adopté une nouvelle politique relativement aux responsabilités des gouverneurs de l'ADC;

a approuvé que l'Ontario Dental Association devienne membre corporatif de l'Ontario à partir du 1er mai 1967, en remplacement du Royal College of Dental Surgeons of Ontario;

a approuvé une déclaration qui précise les standards minimum nécessaires à l'approbation d'une école d'hygiène dentaire;

a renouvelé son appui à la fluoration des eaux;

a recommandé qu'aucune publicité relative aux cliniques de prothèses ne fasse allusion aux honoraires;

a sollicité des membres corporatifs des opinions relativement à l'opportunité d'établir sur une base nationale une association en vue de protéger les droits légaux de la profession dentaire.

Le Conseil des Gouverneurs a aussi approuvé certains amendements aux règlements, lesquels: éliminent le Comité de nécrologie et le Comité du concours mémorial de guerre, et rendent le Conseil d'enseignement responsable du concours mémorial de guerre.

Le conseil a aussi demandé au Conseil de la constitution et des règlements de reviser l'Article XVII des règlements relativement à la votation par le courrier et de déterminer le sens exact du terme "corporation provinciale" tel qu'indiqué dans l'Article II des règlements.

L'équilibre budgétaire demandera une restriction des services

Le Conseil Exécutif a dû réduire de \$14,650 les budgets qu'avaient demandés les différents bureaux, comités et conseils, de

façon à obtenir un budget équilibré pour l'année 1967.

Les dépenses autorisées pour l'année prochaine atteindront un total de \$262,310. Les revenus — compte tenu de \$244,400 en octrois provenant des membres corporatifs — atteindront la somme de \$262,400.

Les restrictions budgétaires — qui correspondront à une diminution de certains des services rendus à la profession — ont été décidées lorsque le trésorier G. M. Dewis a expliqué que l'accumulation des déficits budgétaires des années passées risquent d'épuiser le capital de l'Association avant la fin de l'année courante.

Remarquant le développement des affaires de l'Association et l'augmentation proportionnelle du coût d'opération, le Conseil des Gouverneurs a demandé à chacun de ses membres de tenir les membres corporatifs au courant de l'étendue du problème et de leur présenter "la seule solution raisonnable — une augmentation de l'octroi des membres corporatifs."

Congrès national

Le congrès national s'est ouvert dimanche soir, le 12 juin, par la 'réunion des clans' accompagnée des chants des Halifax Jubilee Singers et de musique de troubadours.

Le conférencier principal le lundi matin était le Dr C. O. Boucher, de Columbus, qui parlait de prothèse. C'est aussi lundi matin que le Dr G. M. Anderson, de Baltimore, a donné la conférence du Mémorial George Wellington Grieve.

Le président sortant-de-charge, le Dr P. S. Christie a présidé au déjeuner de l'ADC lundi midi.

Lundi après-midi, on a pu assister à une grande variété de cliniques de table en orthodontie, prothèse, dentisterie opératoire, couronnes et ponts, chirurgie, administration, endodontie, radiologie, périodontie et hygiène publique.

Le docteur Boucher a donné une seconde conférence mardi matin, suivi du Dr R. W. Phillips, d'Indianapolis, qui parlait de matériaux dentaires.

La séance de mardi après-midi a commencé avec le symposium de l'ADC qui traitait de dentisterie préventive. Parmi

les participants on remarquait les docteurs J. Kreutzer, de Toronto; H. A. Grimsrud, de Regina; le lieutenant-colonel D. H. Protheroe, du Camp Borden en Ontario; et le Dr R. A. Clappison, de Toronto. Le président P. S. Christie était le modérateur. Une conférence sur la thérapie médicamenteuse qu'a donnée le Dr P. R. Dumke, de Détroit, a terminé la séance de mardi après-midi.

Le docteur Dumke était à nouveau au programme mercredi matin. Il était suivi du Dr R. L. de C. H. Saunders, de Halifax, qui traitait de radio-microscopie des vaisseaux sanguins de la pulpe dentaire. Mercredi après-midi, il y avait deux conférences additionnelles — l'une sur les matériaux dentaires par le Dr R. W. Phillips, l'autre traitant de l'examen et du diagnostic des enfants par le Dr Norman Levine, de Toronto.

Le déjeuner de mardi était offert par la ville d'Halifax, alors que l'hôte officiel du déjeuner de mercredi était la Nova Scotia Dental Association. Le ministre fédéral de la Santé et du Bien-Etre, l'Honorable A. J. MacEachen, était le conférencier au banquet du président mercredi soir. Le bal du président qui a clôturé le congrès était un événement social de première importance.

Nouvelles du Parlement

Le projet de loi établissant le fonds de ressources de la santé est sanctionné

Le 14 juin, le ministre fédéral de la Santé et du Bien-Etre, l'Honorable A. J. MacEachen, a présenté la résolution suivante à la Chambre des Communes:

"Attendu qu'il est urgent de prendre les mesures nécessaires pour permettre la constitution d'un fonds de ressources de la santé pour aider les provinces dans l'acquisition, la construction, et la rénovation d'installations de formation pour le personnel de la santé et d'installations de recherches, et d'attribuer à cet effet la somme de \$500 millions qui doit être versée à ce fonds en montants tels qu'il sera nécessaire de temps à autre pour que l'on puisse en tirer les contributions à verser aux provinces; pour

permettre en plus que l'on établisse un comité des ressources de la santé consistant de 11 membres et qu'il soit permis de verser aux membres de ce comité des montants raisonnables devant défrayer leurs dépenses de voyage."

A la suite d'un long débat, la résolution a été approuvée. Monsieur MacEachen a ensuite présenté le Bill C-199 qui doit établir le fonds de ressources de la santé. Ce bill fut sanctionné le 11 juillet.

\$300 millions de ce fonds iront aux provinces qui présentent un plan d'ensemble provincial pour une période de cinq ans. \$25 millions additionnels seront mis de côté pour les provinces maritimes en plus de la part à laquelle elles auraient normalement droit d'après la formule de répartition per capita. Les \$175 millions restant seront réservés pour établir des installations en vue de l'entraînement du personnel de la santé et pour la recherche nécessaire pour rencontrer les besoins nationaux. Ces sommes seront attribuées directement par le gouvernement fédéral.

Monsieur MacEachen a déclaré que le fonds fournira de l'aide à des projets d'une valeur totale de plus de \$1 billion puisque les contributions tirées de ce fonds n'excéderont pas 50 pour cent du coût de chaque projet.

Canada

L'Honorable MacEachen annonce un programme dentaire pour 1980

Il est probable qu'il y aura au Canada un programme complet de soins dentaires vers 1980. C'est ce qu'a dit le ministre de la Santé et du Bien-Etre, l'Honorable Allan J. MacEachen dans son discours prononcé à l'occasion de la réunion annuelle de l'Association dentaire canadienne tenue à Halifax le 15 juin.

Cette éventualité qui ne se concrétisera pas avant une vingtaine d'années peut laisser croire qu'il n'y a pas d'urgence et qu'aucune mesure ne s'impose dès maintenant. Mais il ne faut pas oublier que pour fournir des soins dentaires à 5 pour cent de plus de la population canadienne



Le ministre fédéral de la Santé et du Bien-Être, l'Honorable A. J. MacEachen (centre-droit) en compagnie des docteurs Coupland, Christie et McIntosh. L'Honorable M. MacEachen a prononcé une causerie au cours du banquet du président le 15 juin.

en 1975, il faudrait environ mille dentistes de plus. En conséquence, a dit le ministre, il faut commencer dès maintenant d'une façon active à préparer le personnel supplémentaire dont nous aurons besoin.

Monsieur MacEachen a fait remarquer que la Commission Hall insiste sur l'importance qu'il y a à augmenter le nombre de dentistes et d'installations dentaires. Lorsque cela sera fait, dit-il, les provinces seront en mesure de mettre sur pied un programme s'adressant aux jeunes enfants, programme qui s'étendra graduellement de façon à inclure tous les enfants jusqu'à 18 ans.

Un tel programme, dit-il, tient compte de la réalité et des circonstances actuelles de même que de l'importance de soins dentaires réguliers durant la période de développement d'un individu.

Monsieur MacEachen s'est dit d'accord avec le point de vue de l'Association dentaire canadienne, à savoir que des programmes d'éducation en hygiène dentaire doivent précéder et accompagner tout programme de traitement. En conséquence, dit-il, il faut donner de l'expansion à tous les programmes d'hygiène dentaire à quelque niveau que ce soit. Monsieur MacEachen a en même temps renouvelé son appui à la fluoration.

Le ministre a ajouté qu'au niveau fédéral la seule source d'aide financière aux recherches dentaires provient du

fonds de recherche pour la santé dentaire. A l'heure actuelle il y a 11 projets dentaires dans six provinces qui sont financés par le fonds de recherche pour la santé dentaire.

En plus, a dit le ministre, toutes les facultés dentaires canadiennes de même que les facultés de médecine et les écoles d'hygiène, peuvent demander des octrois spéciaux destinés à augmenter leur personnel dans les domaines de biostatistique et d'épidémiologie.

Nouvelle réglementation relative aux narcotiques

Le gouvernement fédéral annonce une nouvelle réglementation relative aux narcotiques. Les nouvelles directives ont trait au dossier que doit garder le dentiste qui fournit des narcotiques à un patient qui doit se les administrer lui-même.

Le dentiste qui fournit de tels médicaments doit maintenant garder en filière des documents indiquant le nom et la quantité de médicaments fournis, le nom et l'adresse du fournisseur, la date de livraison, le nom et l'adresse du patient qui les a reçus, de même que la date à laquelle on les lui a donnés.

Le dentiste doit garder ces documents chaque fois que la quantité qu'il fournit dépasse les besoins de trois jours, que le patient paie pour ces médicaments ou qu'ils lui soient fournis à titre gracieux.

Ces documents doivent être maintenus de façon telle qu'ils puissent être inspectés par un agent du gouvernement.

Organismes dentaires

Le Collège du Québec repousse un projet d'inspection des laboratoires de dentistes

Le Collège des chirurgiens dentistes de la Province de Québec a obtenu le retrait d'un article d'un projet de loi visant à permettre l'inspection des laboratoires privés des dentistes par les inspecteurs de

l'Association des techniciens dentaires de la Province de Québec.

Le projet de loi, présenté par l'association des techniciens, constituait un amendement à la loi des techniciens dentaires.

A la suite d'une vigoureuse protestation du Collège auprès du bureau des directeurs de l'association, celui-ci a décidé à l'unanimité de retirer l'article en cause.

Réunion des chirurgiens buccaux en Octobre

La Société canadienne des chirurgiens buccaux tiendra sa réunion annuelle à l'Alpine Inn de Ste-Marguerite, P. Québec, les 22 et 23 octobre prochains.

On y traitera des problèmes que rencontrent les chirurgiens aussi bien au niveau local qu'au niveau national. Tous les chirurgiens buccaux seront les bienvenus.

Pour renseignements additionnels communiquer avec le Dr W. B. Donohue, Suite 513, 1414 rue Drummond, Montréal, P. Québec.

Faculté dentaires canadiennes

Le Dr Paynter doyen de la faculté dentaire de l'Université de la Saskatchewan

Le président de l'Université de la Saskatchewan, Monsieur J. W. T. Spinks, a annoncé qu'à partir du 1er juillet 1967 le docteur K. J. Paynter de l'Université de Toronto deviendra doyen de la faculté dentaire que l'on créera à l'Université de la Saskatchewan, à Saskatoon.

Les projets de construction de cette nouvelle faculté dentaire sont connus depuis le 1er septembre. Elle sera attenante à la faculté de médecine et à l'hôpital universitaire sur le campus de Saskatoon. Les travaux de construction doivent commencer au printemps.

Le Dr Paynter n'est pas un nouveau venu dans le domaine de l'enseignement et

de la recherche. Il était professeur agrégé et chef du département d'anatomie buccale à la faculté dentaire de l'Université de Toronto où il dirigeait aussi le département des études post-scolaires. Natif de Kingston en Ontario, le docteur Paynter



Le Dr K. J. Paynter

a obtenu son DDS à l'Université de Toronto en 1944. Enrôlé dans les Forces Armées de 1944 à 1947, il a ensuite exercé sa profession à Ottawa de 1947 à 1949. En 1949, il décida de poursuivre plus avant ses études universitaires et obtint son diplôme de Docteur en Sciences (PhD) de l'Université Columbia à New-York en 1953. Il devint immédiatement membre du personnel enseignant de la faculté dentaire de l'Université de Toronto. Le docteur Paynter vient de terminer son terme de président du conseil des recherches de l'ADC et il est membre du comité consultatif de recherches en hygiène dentaire du Conseil National de la Santé.

On recommande la création d'une faculté de chirurgie dentaire à l'Université Laval

Un rapport recommandant la création à l'Université Laval d'une faculté de chirurgie dentaire dont les premiers diplômes pourraient être délivrés en 1975 vient d'être présenté à la conférence des recteurs et principaux des universités du Québec. Ce rapport a été préparé par un comité d'études mis sur pied dès avril 1965 par la conférence des recteurs et principaux des universités du Québec.

Le comité de spécialistes chargés d'étu-

dier cette question se composait du docteur Gérard Girard, MD, secrétaire de la faculté de médecine de Laval; du docteur Jean-Paul Lussier, DDS, doyen de la faculté de chirurgie dentaire de l'Université de Montréal; du docteur J. McCutcheon, DDS, doyen de la faculté de chirurgie dentaire de l'Université McGill et du docteur Gustave Ratté, DDS, représentant du Collège des chirurgiens-dentistes de la province de Québec.

Le rapport s'appuie sur une abondante documentation et tient compte des besoins en soins dentaires de la population du Québec, des facilités existantes à l'Université de Montréal et à l'Université McGill, du programme d'expansion de ces deux facultés, et des difficultés de recrutement et de formation du personnel enseignant. La faculté de chirurgie dentaire de l'Université de Montréal atteindra son plein développement à compter de septembre 1966, et celle de McGill d'ici quelques années. Le rapport insiste sur la préoccupation de la profession dentaire de satisfaire aux besoins de la population en matière de soins dentaires et énumère les moyens dont dispose la profession pour répondre aux exigences de la population quant à la quantité des soins et à leur qualité:

- (a) augmentation des effectifs des dentistes;
- (b) augmentation du nombre des auxiliaires et définition de leurs fonctions;
- (c) mise au point des connaissances des professionnels par les méthodes les plus avancées, grâce au programme d'enseignement continu ou aux cours de recyclage.

Le rapport se base sur des prévisions statistiques s'étendant jusqu'en 1981, et prend en considération l'accroissement de la population et du nombre des dentistes (compte tenu des projets d'expansion de l'Université McGill et de l'Université de Montréal), l'accroissement des besoins de la population en soins dentaires, la recherche et l'enseignement dentaires. Le rapport préconise également l'organisation de l'enseignement para-dentaire pour former du personnel auxiliaire qui pourra aider le dentiste et le soulager de certaines tâches. Il faudra également organiser l'enseignement permanent pour les dentistes. Toutefois, ces développements

doivent se faire selon une planification qui tiendrait compte des possibilités actuelles et futures.

Economie

Le Collège des chirurgiens-dentistes de la province de Québec prend position relativement au syndicalisme professionnel et à l'assurance-santé dentaire

A leur réunion régulière tenue le 2 juin 1966, les membres du Bureau des gouverneurs du Collège des chirurgiens-dentistes de la province de Québec ont approuvé une déclaration relativement au syndicalisme professionnel et à l'attitude qu'entend adopter le Collège dans l'éventualité d'une initiative gouvernementale qui pourrait nécessiter des négociations avec la profession.

Sans s'opposer à la formation d'un syndicat professionnel, les gouverneurs craignent le morcellement des forces de la profession dentaire. Ils voient dans un Collège fort, représentant une profession unie, le meilleur moyen de sauvegarder les intérêts des dentistes.

Depuis sa formation en 1869, poursuivent les gouverneurs, le Collège veille à la fois sur l'intérêt de ses membres et sur celui du public. En choisissant ses membres avec soin, en réglementant leurs qualifications et les normes du code d'éthique professionnelle, le Collège s'assure que le public sera convenablement traité tout en assurant le bon renom de la profession dentaire. Les gouverneurs ne croient pas qu'il y ait incompatibilité entre l'obligation de protéger les intérêts du public et celle de protéger les intérêts personnels des dentistes.

Le Bureau des gouverneurs du Collège des chirurgiens-dentistes croit être un corps représentatif de tous les dentistes de la province de Québec. Il y a en effet un gouverneur pour cinquante dentistes pratiquant, la répartition géographique des gouverneurs leur semble adéquate et les élections ont toujours été faites de façon démocratique conformément à la loi des dentistes de Québec.

Le Bureau des gouverneurs précise aussi son intention d'étudier toute proposition

d'assurance-santé dentaire, d'en discuter avec le gouvernement pour s'assurer que le programme sera bon pour le public et que les dentistes seront rétribués convenablement. De plus, le Collège se propose d'étudier tous les problèmes connexes à un programme d'assurance-santé.

C'est le comité d'assurance-santé du Collège qui sera appelé à se charger de ces responsabilités. Pour éviter tout malentendu, les gouverneurs ont voté un règlement spécial précisant les responsabilités de ce comité qui existe déjà depuis plusieurs années. On le charge de façon spécifique d'étudier toute proposition d'assurance-santé gouvernementale.

C'est le docteur Louis Bernier de Québec qui préside ce comité dont le nombre des membres sera bientôt augmenté de façon à assurer une représentation adéquate à toutes les régions de la province de Québec.

Palmarès

Le docteur **Jean-Louis Bertrand**, de Dorval, P. Québec, a reçu le prix Begg au cours du congrès de la Begg Orthodontic Society tenu à Atlanta, Georgie, en mars 1966. Ce prix va à l'orthodontiste qui fait le meilleur exposé d'un cas traité avec la technique de Begg.



Le docteur J.-L. Bertrand, de Dorval, P. Québec, reçoit le prix Begg.

The Association

Aptitude Test Program Starts in January '67

Improved selection of first year dental students is expected to result when the Canadian Dental Association launches an aptitude test program for prospective dental students early next year. The Canadian program will be similar to one started by the American Dental Association some years ago.

It is important to the candidate, to the dental profession and to dental schools that utmost care be exercised in the selection of first year students. Aptitude tests make it possible to predict, with a high degree of accuracy, the probable success of students in dental schools.

The first Canadian tests will be held January 6 or 7, 1967. Test centres will be located in dental schools and also in some 20 other university centres across the country. A fee of \$15 is required to take the battery of tests.

Application forms and information brochures may be obtained from any Canadian dental school or from the Dental Aptitude Test Program, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

News from Parliament

Medicare Bill Introduced to Parliament July 12

Federal Health and Welfare Minister A. J. MacEachen on July 12 introduced the following resolution in the House of Commons:

"That it is expedient to introduce a measure to authorize the payment of contributions by Canada towards the cost of insured medical care services incurred by provinces pursuant to provincial medical care insurance plans."

Following an all-day debate, the resolution was reported and concurred in. Mr. MacEachen thereupon introduced the relevant bill (C-227) which received first reading the same day.

Under its medicare plan, the federal government will pay to the provinces a per capita amount equal to 50 per cent of the overall average cost of insured physicians' services among the participating provinces.

To qualify, provincial medicare plans will have to satisfy four federal requirements:

They must be publicly administered;

They must cover, as a minimum, services of general practitioners and specialists;

They must cover 90 per cent of the residents of the province on the starting date of July 1, 1967, and 95 per cent by July 1, 1969; and

They must be portable from province to province.

The following day (July 13) Mr. MacEachen announced that the Commons would consider further stages of the medicare legislation when the House reconvenes on October 5 after the summer recess.

Health Resources Bill Receives Royal Assent

Bill C-199, which provides for the establishment of the \$500 million Health Resources Fund, was passed by the Senate on July 5 and received royal assent on July 11.

Canada and the Provinces

Dr. Strachan, Dentist on Hall Commission, Dies

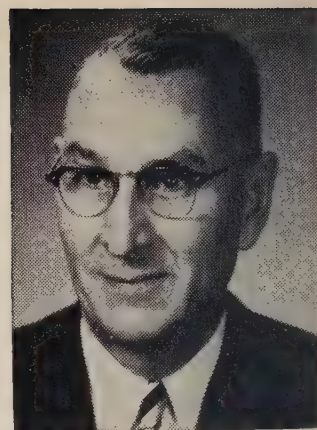
C. L. Strachan, a member of the Royal Commission on Health Services, died in London, Ontario, July 6.

Born in Manitoba, Dr. Strachan graduated from the Royal College of Dental Surgeons of Ontario in 1924.

Active in the pre-war militia, Dr. Strachan went overseas in 1939 with the First Division Dental Company, serving in England and north-west Europe. After the war he settled in London where he

organized and commanded a reserve dental unit.

C. L. Strachan



Barrett

Examination for Fellowship in the Royal College of Dentists of Canada

Dentists who practise a specialty recognized by the Canadian Dental Association and who held provincial specialist certification as of March 18, 1965 are advised that the closing date for receiving applications for the first examination for fellowship in the Royal College of Dentists of Canada has been set as midnight, December 31, 1966. This examination has been set in accordance with Bill S-44 (An Act to incorporate the Royal College of Dentists of Canada), section 6, subsection 2, which states: "Other dentists, engaged in any of the specialties recognized by the Canadian Dental Association, who hold provincial specialist certification upon the coming into force of this Act [March 18, 1965], and who are not admitted to fellowship under section 2 (Provisional Council) or subsection 1 of section 6 [charter fellows] of this Act may, within a reasonable time after the coming into force of this Act, such time to be determined by the first elected Council, apply for fellowship by examination."

Applications must be made on a special form available from the Secretary, Dr. J. E. Speck, Suite 614, Medical Arts Building, 170 St. George Street, Toronto 5, Ontario. A brochure will be sent each candidate giving guidance as to examination requirements, fees, and so forth.

Applicants who fail to apply before this deadline (December 31, 1966), or who are not eligible under the wording of the Act to sit this examination, may seek fellowship through section 3 of the by-laws of the College which, at present, state: "Examination for election to fellowship shall consist of two parts. A candidate may, on completion of the prescribed formal study as laid down by the College for his particular specialty, apply to take the Part I examination as set by the College. If he is successful he will be eligible to attend meetings of the College without right to vote. On completion of the additional requirements for the Part II examination as set by the College, he may apply for this (Part II) examination and election as fellow." Details of these requirements may be obtained from the secretary at the above address.

Dr. Strachan was president of the London Dental Society in 1948 and president of the Ontario Dental Association in 1958. He also served on the CDA Board of Governors and Executive Council.

He was a fellow of the International College of Dentists and a past president of the College's Canadian section.

Dr. Strachan retired from private practice in 1963.

International Items

XIVth World Dental Congress Slated for Paris, France, July 7-13, 1967

The Fédération Dentaire Internationale will sponsor the XIVth World Dental Congress in Paris, France, July 7-13, next year. The congress, held every five years, will be open to CDA members.

Purpose of the congress is to review and discuss new developments in dental science and practice and to strengthen relations between dentists and dentistry in all countries of the world.

CDA members who plan to attend the congress are urged to become supporting members of the FDI. There is a reduction in the enrolment fee for supporting members. Applications for supporting membership may be obtained from the FDI national treasurer in Canada, W. G. McIntosh, 234 St. George Street, Toronto 5, Ontario.

The FDI held the last World Dental Congress in 1962 in Cologne, Germany.

International Dental Film Festival in Paris Next Year

Canadian dentists, dental laboratories and manufacturers of dental supplies and equipment have been invited to enter motion pictures in an international dental film competition to be held during the XIVth World Dental Congress in Paris July 7-13, 1967.

Submitted 16 mm. films should deal with some aspect of dental practice. Commercial or unoriginal films will not be accepted. A short summary (4-5 lines) must accompany each film. A 15 man

jury will select the actual films which are to be shown during the congress and will allocate prizes.

Applications for participation in the competition should reach J. Charon, secretary general of the FDI World Dental Congress, 22 avenue de Villiers, Paris 17, France, before January 31, 1967.

Submitted films must reach the secretary general not later than April 1, 1967.

Jamaica Meeting in January '67

Canadian dentists have been invited to attend the third national convention of the Jamaica Dental Association January 22-27, 1967. This meeting will be held at the Kingston-Sheraton Hotel, Kingston, Jamaica. For further information please write to G. C. McDowell, P.O. Box 19, Kingston 5, Jamaica, WI.

Americans Aid Dental Education in South Viet Nam

A team from the American Dental Association flew to South Viet Nam August 2 to study the feasibility of expanding dental education in that country. This action resulted from a contract with the US State Department's Agency for International Development. The survey team studied dental school facilities in Saigon which are part of the Faculty of Medicine at the University of Saigon.

The ADA may later act on recommendations submitted by the survey team. These might involve sending US dental educators to Viet Nam to relieve the shortage of dental instructors at the Saigon school. Another step might be an interchange educational program under which Vietnamese dental educators would take postgraduate studies in the United States.

Periodontists to Meet in San Antonio

San Antonio, Texas, will be the site of the 52nd annual meeting of the American Academy of Periodontology, November

9-12, 1966, at the St. Anthony Hotel. The program will feature outstanding essayists and clinicians in the field of periodontology. Members of all recognized dental organizations are invited to attend.

Further information may be obtained from H. A. Hartman, chairman, Publicity Committee, American Academy of Periodontology, 4187 Pearl Road, Cleveland, Ohio 44109, USA.

Hospital Dental Chiefs to Meet in Dallas Nov. 13

The American Association of Hospital Dental Chiefs has scheduled an all-day session at the Baker Hotel in Dallas, Texas, November 13.

Lecturers and their subjects include:

P. T. Phillips, "Utilization of the hospital by dentists: why?"

F. A. Henny, Henry Ford Hospital, Detroit, "The oral surgical section of the dental service;"

K. E. Lawrence, Kansas City, "The hospital as a site for the general practitioner," and

A forum on "Dentistry's present position under medicare in the hospital."

Further information about the meeting may be obtained from I. E. Gruber, secretary, American Association of Hospital Dental Chiefs, 100 South Grand Avenue, Baldwin, New York 11510, USA.

Dixie Seminar in Florida, Jan. '67

The American Institute of Oral Sciences will sponsor the first Dixie Dental Seminar at the Diplomat West Hotel in Hollywood, Florida, January 12-15, 1967.

This seminar is directed to practising dentists who want to learn about the latest findings in basic and clinical sciences. There will be ample opportunity for informal discussion and audience participation.

The attendance fee of \$195 includes accommodation, meals and gratuities. Wives will be permitted to attend for a nominal fee.

Additional information may be obtained from S. N. Bhaskar, United States

Army Institute of Dental Research, Walter Reed Army Medical Center, Washington, D.C. 20012, USA.

Boston Offers Dental Courses

Included in a program of graduate education at the Boston University School of Graduate Dentistry are courses in oral surgery, orthodontics, periodontics, prosthodontics, endodontics, oral pathology, paedodontics and preventive dentistry.

For further information and application forms, enquiries should be addressed to H. M. Goldman, dean, School of Graduate Dentistry, Boston University, 80 East Concord Street, Boston, Massachusetts 02118, USA.

Postgraduate Courses Offered in New York

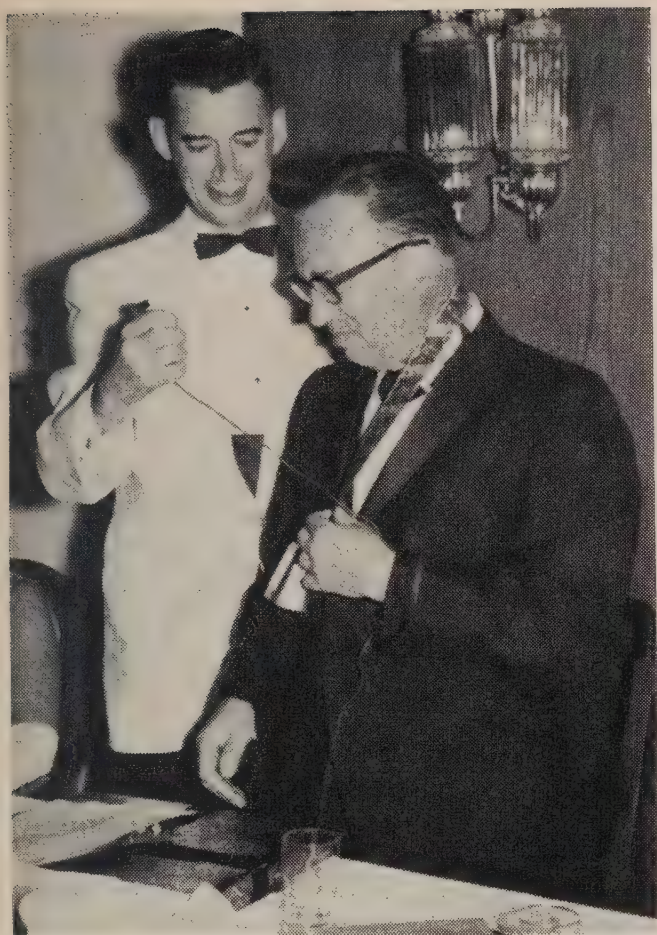
The First District Dental Society will offer a variety of short postgraduate refresher courses during November. Further information may be obtained from J. J. Adelson, First District Dental Society, Statler Hilton Hotel, 7th Avenue and West 33rd Street, New York, New York 10001, USA.

Dental Organizations

Dr. Margolese is President of BC Assn.

At the recent golden anniversary convention of the British Columbia Dental Association, held in Prince George, Sheppard Margolese of Vancouver was elected president. He succeeds D. E. Waller of Prince George. Named with Dr. Margolese were A. E. Swanson, Vancouver, president-elect; G. C. Walkey, Duncan, treasurer; and J. L. Hornibrook, Vancouver, secretary.

Directors of the association are V. M. Erickson, Dawson Creek; R. G. Donaldson, Chilliwack; G. B. Cranstoun, Victoria; M. W. Balanko, Vancouver; R. E. D. Munn, Vancouver; E. R. Eburne, Van-



Sheppard Margolese of Vancouver (r.), newly elected president of the British Columbia Dental Association, is shown receiving the chain of office from Immediate Past President D. E. Waller of Prince George. The occasion was the golden anniversary convention of the BCDA.

couver; F. E. Moore, Penticton; J. F. F. Mykietyn, Trail; J. H. Bridges, Burnaby; and R. M. Carmichael, Powell River.

Quebec College Thwarts Attempt to Inspect Dentists' Laboratories

Prompt action by the College of Dental Surgeons of the Province of Quebec has resulted in the withdrawal of a clause from a proposed bill which would have permitted inspection of dentists' private laboratories by inspectors of the Association of Dental Technicians of the Province of Quebec.

The bill had been introduced by the technicians' association as an amendment to the present Technicians' Act.

Following a strong protest to the association's board of directors, that group unanimously agreed to withdraw the offending clause.

Dr. Mollins is President of PEI Association

C. D. Mollins of Summerside was recently elected president of the Dental Association of Prince Edward Island. He succeeds O. H. Phillips of Summerside.

Other officers elected for the coming year are H. C. Stewart, Kensington, vice-president; G. D. Barrett, Charlottetown, secretary-treasurer-registrar; and L. I. Duffy, Charlottetown, council member. G. D. Barrett was named representative to the National Dental Examining Board and A. L. MacIsaac, Charlottetown, representative to the Canadian Dental Association with J. C. Gallant, Charlottetown, alternate representative.

Regional Conventions

Montreal Fall Clinic October 22-26

Practice administration and treatment planning are the subjects of two special seminars which will precede the regular three day program of the 41st Annual Fall Clinic of the Montreal Dental Club. All sessions are slated at Montreal's Queen Elizabeth Hotel October 22-26.

R. M. Wolff, a Clayton, Missouri, paedodontist, will discuss practice administration, motivation and patient education on October 22-23. S. F. Dachi of Lexington, Kentucky, will give a course in oral diagnosis and treatment planning during the same period.

On October 24, Dr. Dachi will give a full day lecture in French on pulpal and biologic effect of restorative dentistry.

Other convention lecturers and their subjects include:

A. A. Brewer, US Air Force Headquarters Command dental surgeon, speaking on prosthodontic practice and research;

D. R. Jordan, Indiana University School of Dentistry, who will discuss removable partial dentures and prevention of tooth and bone loss;

M. E. Lucyk, University of Toronto Faculty of Dentistry, speaking on one-appointment endodontic therapy;

J. K. Chastain, Stanley Sturman and K. L. Tharp, Louisville, Kentucky, who will give their views on articulators and occlusion; as well as

Two panels of Montreal dentists who will discuss crown and bridge prosthodontics and operative dentistry.

There will also be motion pictures and table clinics.

Further information may be obtained from the Montreal Dental Club at 4166 St. Catherine Street West, Montreal 6, P. Quebec.

Royal Canadian Dental Corps

Three Canadian Dental Officers Visit Tel Aviv, Israel

Brig. K. M. Baird, Director General of Dental Services for the Canadian Forces, Lt.-Col. L. A. Richardson, commanding officer of No. 4 Field Dental Unit, Germany, and Capt. G. R. Nye, detachment commander, Cyprus, attended the International Conference on Military Dentistry which was held in conjunction with the 54th Annual Session of the Fédération Dentaire Internationale in Tel Aviv, Israel, last July.

Sixteen Officers Transferred

Canadian Forces Headquarters announced the following location changes:

Capt. **C. M. Mason** of Porcupine Plain, Saskatchewan, Capt. **D. H. Weeks** of Vancouver, and Lt. **E. S. W. Moore** of Windsor, Ontario, to France;

Lt.-Col. **H. R. Kettyls** of Edmonton, to Esquimalt, British Columbia;

Lt.-Col. **F. D. Charman** of Truro, Nova Scotia, Maj. **E. M. C. Franklin** of Digby, Nova Scotia, Maj. **H. K. Meisner** of North Brookfield and Annapolis Royal, Nova Scotia, and Capt. **M. Kostyniuk** of Theodore, Saskatchewan, to Halifax;

Lt.-Col. **R. A. Fell** of Winnipeg, to Goose Bay.

Lt.-Col. **W. H. Carter** of Kapuskasing, Ontario, to St-Jean, P. Quebec;

Maj. **J. I. Gordon** of Halifax, and Lt. **T. M. Jackson** of Kingston, Ontario, to Montreal;

Capt. **N. H. Andrews** of Halifax, to the RCDC School, Canadian Forces Base Borden, Ontario;

Maj. **H. G. Bunston** of Brandon, Manitoba, to Centralia, Ontario;

Maj. **J. O. L. Bourget** of Gaspé, P. Quebec, and Maj. **D. E. McDermott** of Toronto, to Ottawa.

Two Officers Leave, Two Others Rejoin Corps

Maj. **E. D. Fraser** of Springhill, Nova Scotia, and Capt. **R. F. C. Oswin** of Edmonton recently retired from the Royal Canadian Dental Corps.

C. L. Gullekson of Edmonton and **J. R. Cowan** of Winnipeg have rejoined the RCDC and are serving at Canadian Forces Base Edmonton and Canadian Forces Base Winnipeg respectively.

Canadian Dental Schools

New Dental School at Laval U Proposed

Laval University in Quebec City could produce its first dental graduates by 1975 according to a report presented to a conference of Quebec university presidents and rectors earlier this year. The report was prepared by a special committee including Gérard Girard, secretary of Laval's Faculty of Medicine; Jean-Paul Lussier, dean of the Université de Montréal's dental school; James McCutcheon, dean of McGill's Faculty of Dentistry; and Gustave Ratté, representing the College of Dental Surgeons of the Province of Quebec.

The report notes that current expansion at the Université de Montréal school will be completed by September 1966. McGill's dental expansion program will follow a few years later. Additional training facilities for dentists and dental

auxiliaries will be required thereafter to keep pace with Quebec's projected population growth to 1981.

Economics

National Association of Dental Service Plans Holds First Meeting in Chicago

The National Association of Dental Service Plans, with 33 member organizations in attendance, held its first annual conference June 14-16 in Chicago.

NADSP co-ordinates activities for American dental service corporations, the profession's representatives in the dental prepayment market. All 11 currently active US service corporations, six of 13 corporations not yet operating and 16 state dental societies were represented during the three day session at the American Dental Association headquarters building. Mrs. B. I. Brown, director of the Bureau of Economic Research, attended as a representative from the Canadian Dental Association.

Established by a 1964 directive of the ADA House of Delegates, NADSP was incorporated in January 1965. It has been operational since January 1966.

NADSP will provide member organizations with consultative and information services as well as conduct financial and statistical studies of dental service plans.

Canadian dental service corporations — whether active or not—are eligible for affiliate membership in the NADSP providing they have the approval of their provincial dental association. The annual dues for affiliate membership will be \$50 a year. Affiliate members do not have voting rights at NADSP meetings.

Ontario Dental Welfare Plan Pro-Rated Fees Increased

Pro-rated fees under the Ontario Dental Welfare Plan were increased to 90 per cent of the Ontario Dental Association's fee schedule on July 1.

A total of 46,448 persons are eligible to receive basic dental care under the Ontario General Welfare Assistance and Mothers' and Dependent Fathers' Allowance Acts. This is 70 per cent more people than were eligible last year.

BC Mechanics Launch "Dentucare" Plan

According to the July 16 issue of *The Financial Post*, a plan to "guarantee lifetime denture service for \$200" is being launched by the Public Denturists Society of British Columbia. Under the scheme, those participating pay \$200 and can obtain new dentures without additional cost any time they lose old ones and need replacements. The plan also covers repairs. The money has to be paid in a lump sum for a person to qualify for participation.

Fluoridation

Only Fluoridated Water Approved in Kentucky

The Kentucky State Health Department has announced that it will only grant full approval of public water systems to those systems which are fluoridated. Water supplies lacking fluoridation would receive "provisional approval." Kentucky currently ranks sixteenth in the United States, with 64 per cent of its community water supplies fluoridated.

Deaths

Bartholomew, John Wesley. 69. Newmarket, Ontario. Royal College of Dental Surgeons of Ontario, 1920. 25-7-66.

Cowan, William Arnold. 82. Toronto. Royal College of Dental Surgeons of

Ontario, 1909. Associate member CDA. 4-7-66.

Daynard, William Britton. 87. Carman, Manitoba. Royal College of Dental Surgeons of Ontario, 1907. 21-6-66.

Nagle, Edmund Burke. 71. Meadow Lake, Saskatchewan, University of Pittsburgh, 1920. 24-6-66.

Strachan, Cecil Leslie. 67. London, Ontario. Royal College of Dental Surgeons of Ontario, 1924. 6-7-66.

Awards and Honours

J. L. Bertrand, Dorval, P. Quebec, won the Begg Award at the meeting of the Begg (Orthodontic) Society held in Atlanta, Georgia, in March 1966. This award



J. L. Bertrand (l.), Dorval, P. Quebec, recently received the Begg Orthodontic Award in Atlanta, Georgia.

goes to the orthodontist who makes the best case presentation of a patient treated with the Begg technique.

in memoriam

Cecil Leslie Strachan

Barrett



C. L. Strachan

Dr. C. L. Strachan of London, Ontario, died on July 6, 1966, at the age of 67. Born in Hamiota, Manitoba, in 1898, he graduated from the Royal College of Dental Surgeons of Ontario in 1924.

During World War I Dr. Strachan served with the Royal Flying Corps and the Royal Air Force. Prior to World War II he served with the Cavalry Militia Unit and in 1939 he went overseas with

the Canadian Dental Corps, serving in England and north-west Europe. Discharged in 1945 with the rank of lieutenant-colonel, Dr. Strachan settled in London, Ontario, where he organized and commanded a reserve dental unit. In 1956 he retired with the confirmed rank of colonel.

Dr. Strachan was president of the London and District Dental Society in 1948 and of the Ontario Dental Association in 1958. He also served on the Board of Governors and Executive Council of the Canadian Dental Association. He was a fellow of the International College of Dentists and a past president and editor for its Canadian Section. Latterly he was a member of the Royal Commission on Health Services.

Dr. Strachan retired from private practice in 1963.

Besides his wife, Mary Emeline, Dr. Strachan is survived by a daughter, Mrs. R. L. Buchanan of Fayetteville, New York, and a granddaughter, Leslie Ruth.

The Sterilization of Dental Instruments

C. G. Maurice and N. A. Remeikis D. Progress 3:180, 1963.

The resistance of five micro-organisms to a number of different disinfection and sterilization techniques was tested. The findings of this study were in basic agreement with prevailing concepts of sterilization. Autoclaving (including the oil-dip autoclave variation) and dry-heat sterilization are the most effective methods of sterilizing instruments, heavy contamination notwithstanding. Boiling water and boiling AC 10 (surgical) soda preparation are the next most effective. Chemical disinfecting solutions, at least as represented by aqueous and tincture solutions of benzalkonium (*Zephiran*) chloride 1:1,000 are the least effective.

Description and Mechanism of Early Enamel Caries

Barbara J. Wallace and T. B. Coolidge. D. Progress 3:145, 1963.

Systematic microscopic studies of early enamel caries revealed changes identical with those of white-spot, smooth-surface lesions known to be produced by a leaching-out of inorganic material, modified in some cases by the surface configuration of the enamel in others by impregnation with pigments. This description of the early carious process is unique in that it is based on all the lesions present on occlusal and smooth surfaces of a near-random selection of almost 500 teeth.

The Trauma of Cooling in Operative Dentistry

C. A. Ostrom. D. Progress 3:138, 1963.

Large numbers of virtually identical cavity preparations, made available by a new experimental procedure, permitted comparison of the traumatic effects of cooling devices commonly used in modern practice. Air-

water coolant usually produced little or no pulp reaction, while cavity-cutting associated with air spray resulted in immediate intratubular displacement of odontoblast nuclei. This study also introduced a test agent, *Botulinus* toxin, into cavities cut using one or the other cooling device. The more effective passage of the toxin through tubules cut under air-water spray showed normal permeability of the dentine, while air-cooling in some way altered the dentine and inhibited penetration of the test agent.

Periodontal and Oral Hygiene Status of Teenagers in Optimum and Fluoride-Deficient Cities

H. R. Englander and C. L. White. J.A.D.A. 68:173, 1964.

In a study of teenage children in Aurora (1.2 ppm fluoride) and Rockford (0.1 ppm fluoride), Illinois, the severity and prevalence of periodontal disease was determined by means of a Periodontal Index (PI). The Oral Hygiene Index (OHI) was also determined. No significant differences in periodontal health or the status of oral cleanliness were found for the two groups. There was a direct correlation between the PI and the OHI scores for children in each city. The lifetime consumption of fluoridated water appears to have neither harmful nor obviously beneficial effects on the periodontal tissues of children.

Power Versus Hand Brushing: Effect on Gingivitis

P. M. Sopokar and G. A. Quigley. J.A.D.A. 68:182, 1964.

In a study of 270 non-dentally oriented college students, the effect of an automatic toothbrush (GE) upon gingivitis was compared with that of patient's own toothbrush and a two-row medium hard, nylon brush. No instructions were given concerning frequency, duration or method of brushing. A

clinical examination was made of the labial papillae and marginal gingiva in the maxillary and mandibular anterior regions before and at the end of 11 weeks. The automatic toothbrush was found to be 45 per cent more effective than the hand toothbrush in reducing the severity of gingivitis. There was no significant difference between the two hand brush groups.

Hypersensitivity Controlled by Iontophoresis

A. L. Jenson. J.A.D.A. 68:216, 1964.

In a double-blind clinical study, 56 patients with hypersensitive teeth used an iontophoretic toothbrush with a dentifrice containing 2,000 ppm sodium fluoride. An approximate tenfold reduction of dental hypersensitivity resulted after six weeks' use. No undesirable side effects were noted. The effect of the iontophoretic toothbrush without the sodium fluoride dentifrice was not determined.

The Relationship Between Tooth Form and Gingival Health

D. F. Veldkamp. D. Practitioner 14:158, 1963.

Gingival recession increases the amount of tooth exposed on the apical side of the maximum bucco-lingual diameter of the tooth, with the increased risk of food and plaque accumulation. It is suggested that in reconstruction of such teeth the maximum bucco-lingual width be placed at the gingival margin, with the buccal and lingual surfaces converging occlusally, giving the crown a conical form. Advantages to be gained are: reduction of the occlusal table in periodontally diseased teeth; greater exposure of the interdental area for more effective stimulation, and increase of the width of the embrasures with narrower contact areas which will promote the formation of convex rather than col-shaped interdental papillae.

Some Effects of Rapid Maxillary Expansion in Cleft Lip and Palate Patients

R. J. Isaacson and T. D. Murphy. Angle Orthodont. 34:143, 1964.

Five male patients with surgically repaired complete clefts of the premaxilla and secondary palate were treated using a rapid mechanical expansion screw appliance. Changes in the facial skeleton were recorded

using metallic implants. Expansion of basal and alveolar maxillary bone was clearly demonstrated in four 12-year old patients. The expansion was not always symmetrical, however, and no correlation between the amount of expansion and the cleft quadrant was apparent. No lateral maxillary expansion occurred in one 22-year old patient. Crossbite was corrected through extrusion and tipping of the buccal teeth. Lesser movements of the buccal segments in both an anterior and superior direction were observed in all patients. Only slight changes in the configuration of the nasal cavities were demonstrable. The resistance of the facial skeleton is at least as important a factor as the mid-palatal suture in rapid mechanical expansion procedures. The need for information regarding the forces produced by rapid mechanical expansion procedures and the response of the facial skeleton to these forces is emphasized.

The Effect on Dental Caries of a Change from Naturally Fluoridated to a Fluoride-Free Communal Water

R. M. Way. J. Den. Children 31:151, 1964.

Galesburg, Illinois, citizens received naturally fluoridated communal water from 1919 to 1959. This was substituted by Mississippi River water in May of 1959. Mississippi River water is essentially fluoride-free.

Clinical observation of Galesburg children examined in the dental office suggested that the change from naturally fluoridated to a fluoride-free communal water during a period of two years permitted carious lesions to develop in children who previously were free of lesions. This observation prompted a study to determine whether the continued use of fluoride was essential to maintain the limited immunity that existed when a naturally fluoridated communal water was used. The results of this study confirm the findings of previous investigators that children who are continuous residents in an area of fluoridated water possess a limited immunity to dental caries. Teeth exhibiting mottled enamel are no more liable to decay than those with no mottling as confirmed by previous studies. There appears to be a topical benefit derived from the presence of fluorides in the drinking water. Children migrating or discontinuing the use of a fluoridated communal water experience a significant increase in carious lesions after a lapse of two years on fluoride-free water. The increment of carious lesions in children with dental fluorosis is the same for varying degrees of mottled enamel. To maintain the limited immunity, that existed while ingesting the fluoridated communal water, continued use of fluorides is essential for children of all age groups.

Clinical Oral Diagnosis

J. H. Manhold, Jr. Toronto, McGraw-Hill Co., 1965. 368 p. Illus. \$14.10

This is a new book on a subject which has been of increasing interest in recent years to dental educators and practitioners alike. It therefore merits a careful appraisal of the value of its contribution to the current dental literature in this field.

The book is divided into three main parts. The first is on methodology and deals with orientation, the taking of an adequate case history and clinical examination of the patient. These chapters are full of sound and practical information and leave no doubt that the author possesses both a wealth of experience and keen clinical perception. A chapter on psychological evaluation is a worthwhile feature although the list of 36 books and papers given as suggested additional reading on the subject may prove a deterrent to the average reader.

The second part of the book deals with signs and symptomatology and is covered in four chapters. The clinical features and recognition of the commoner lesions of the lips and oral cavity are well described, and a chapter on the differential diagnosis of dental and other head pain is an excellent presentation of a most important and frequent problem in oral diagnosis. The following chapter on oral pathology, however, is the weakest section of the whole book. Admittedly, the author states his intention of brevity in view of the standard works available, but in consequence the chapter is inadequate either as a text for students or a reference for practitioners.

The third part is perhaps the most original section and deals with treatment planning. After discussion of basic principles, dentulous and edentulous patients are considered in separate chapters, which again reflects the author's wide experience with clinical problems.

There are numerous inconsistencies and trivial errors in the book. The word 'operable' is used when 'operative' is meant (p. 90). Amelogenesis imperfecta is said to be a prominent oral sign of osteogenesis imperfecta (p. 99) but later (p. 227) it is dentinogenesis imperfecta which is correctly given as a manifestation of osteogenesis im-

perfecta. Paget's disease is correctly spelled in the text on p. 98 but incorrectly in the legend to Figure 4-31 on the same page. A surprising omission is that there is no mention of the DMF index.

The author has arranged the material in an orderly and methodical manner under headings and subheadings but has been let down by the type-setting. Subheadings are as prominent as headings and the type used varies in different parts of the book, c.f. pages 130 and 180.

The illustrations are mostly adequate but many fail to demonstrate the features described. This is particularly true of the photomicrographs, of which Figure 6-1B is a good example.

On the whole, the concept of the book is good, the style easy and pleasing, the material well chosen and in good balance for the student or practitioner. The many small irritations do detract but if corrected in any future editions, will enhance the value of a worthwhile addition to the dental literature.

J. A. Pedler

Atlas of Crown and Bridge Prosthodontics

L. A. Weinberg. St. Louis, C. V. Mosby Company, 1965. 283 p. Illus. \$25.00

The objective of this Atlas is "to present a graphic step-by-step procedure for the preparation of a three unit fixed partial prosthesis as well as a guide to a complete arch reconstruction."

In a sense, this is a new kind of textbook. Dr. Weinberg has projected his ideas as a student of prosthetics at both a theoretical and clinical level. Because the author is obviously an accomplished illustrator the reader is able to visualize just what is being explained in the text from the very large number of drawings presented. Drawings, rather than photographs, illustrate the various steps described in detail throughout the book. In most cases these illustrations are so arranged that the pictorial information and the descriptive information are on facing pages.

The first chapter is on diagnosis and prognosis. Succeeding chapters take the reader

through preparations, temporary bridges, impressions, articulation, casting, assemblage and cementation, to mention but a few topics.

The material is presented in such a way as to lead the reader beyond specific techniques and into the underlying principles involved, enabling him to select and modify the clinical technique presented to suit his own need and concepts.

The practicality of the text is further expanded by the inclusion of some of the atypical problems which the practitioner may confront. For example, techniques for minor tooth movements are illustrated to satisfy the need to reposition abutments. Alternative methods of splinting are offered as well as the recent advances in pin techniques. These give the reader as wide a choice of available treatments as possible. Valuable quality and treatment check lists are included as well as a final chapter covering "Troubleshooting in Full Coverage."

The text should be of great value to undergraduate students and it contains enough detailed, advanced information on theory and techniques of Crown and Bridge Prosthodontics to make it a most useful addition to the library of the general practitioner.

H. J. MacConnachie

Synopsis of Oral Pathology

S. N. Bhaskar, Ed. 2. St. Louis, C. V. Mosby Company, 1965. 526 p. Illus. \$10.25

The format of the second edition of this reference book is the same as that of the first edition in that it is divided into two parts. The first part contains a series of charts of groups of oral lesions in which the usual location, usual age, predominant sex, clinical features, histology, treatment and prognosis are listed for easy comparison with similar lesions. The second part is a synopsis of oral pathology with brief suggestions as to treatment.

The dentist will find the first part a useful guide in arriving at a diagnosis and treatment plan. For more detailed information on a specific lesion the appropriate reference page in part 2 is also listed. By turning to this section he can get a fuller description of the lesion.

A difficulty with part 2 is that the descriptions are of necessity extremely brief. A dentist will want to know much more about some conditions before he starts treatment. In this respect the text does not supplant standard textbooks in oral pathology but becomes a guide to their proper use.

Several additions to the content are included in the second edition. These include apical scar and cholesteatoma; a section of transplantation and replantation; several rare odontogenic tumours; conditions such

as recurrent aphthous ulcers, Reiter's syndrome, lymphoepithelial cysts; and information about haemopoietic bone marrow.

Some pathologists will find fault with the terminology used in some instances. The word 'epulis' is retained and the term 'pregnancy tumour' is used. 'Periodontosis' is categorically stated to exist, and 'idiopathic bone cavity' is used to describe a condition known as mandibular salivary gland depression by others.

Moreover, the descriptions of some of the lesions contain statements regarding incidence and most common location which would be hard to support. An example of this is the ameloblastic odontoma which is stated to be more common in the maxilla and in the male.

The book is written in a lucid style and the illustrations are excellent and well labelled. If used as a guide to diagnosis, it is a valuable contribution to the dental literature and one which the practising dentist will find useful in his office.

K. A. McMurchy

Cleft Lip and Palate. Criteria and Physical Management

H. L. Morris, ed. *A Report of a Conference. Iowa City, Iowa, The University of Iowa.* 110 p. Illus.

This is the report of a conference held in Iowa City in October 1963. The purpose of the conference was to "advance the identification of variables and criteria being considered in making decisions, particularly those involved in surgical management."

Three preliminary orientation papers were presented, and these are highly recommended to anyone associated with a cleft palate centre. They point out the need for a scientific approach to research design, some current issues in cleft palate surgical habilitation, and the problems and value of the team approach.

The body of the report follows a rigid format which details the variables requiring identification and establishment of criteria. This part of the conference was probably stimulating to the participants, but the report is vague and ineffectual. The section on dental and facial growth is appalling, even for a report oriented to surgeons. A surgical problem which was overlooked, the residual nose deformity, is probably the worst aesthetic problem these children have. There is an appendix about a group of patients which serves no apparent purpose.

The report concludes with an excellent summary ("some concluding impressions") which points out the need for a reappraisal of present methods of establishing and communicating criteria for diagnosis, treatment planning and research.

R. B. Ross

Comprehensive Review for Dental Hygienists

Shailer Peterson. St. Louis, The C. V. Mosby Company, 1965. 285 p. \$7.85

Although in Canada there is less emphasis on the taking of licensing examinations, the Canadian dental hygienist should find this review book helpful in preparing for the American national board examination as well as for state and provincial licensing examinations.

The editor and 18 contributors (11 from his own school) have collected for the first time questions which in their opinion typify the questions found in state and national board examinations. The questions have been indexed with discussion-type answers at a level which the authors consider suitable for the dental hygiene student and graduate. Nineteen subjects are included in this book. The American national board examination covers 12 subjects and the questions are all in multiple-choice short-answer form. Though this original book has unquestioned value, the order and the form of the questions leaves something to be desired by the candidate who studies the material for review and recall. The depth of the material varies considerably and its scope is debatable (as the editor acknowledges). I would therefore hope that dental hygiene educators will not rely unduly on this book as a guideline to determining the depth and the scope of their courses of instruction.

The chapter on how to prepare for examinations is of little help. But there is another chapter which tabulates data with respect to each state licensing board including subjects covered, necessary citizenship, examination and licensing fees, requirements for practical examinations, addresses for application and many other useful details. Another chapter helpfully lists in detail the permissible operations of the dental hygienist in each state. These chapters will fascinate and at times amuse the non-American dental hygienist.

Attractive illustrations appear with each chapter heading, but have no further function. The format is generally pleasing and effective. The book is easy to handle and is reasonably priced. This book would without doubt be worthwhile to any dental hygiene student or graduate planning to take dental hygiene examinations. But dentist-employers and licensing boards should look elsewhere to learn about the quality and quantity of the dental hygienist's preparation.

Dixie Scoles

Practice of Orthodontics

J. A. Salzmann. Vol. 1 and 2. Philadelphia and Montreal, J. B. Lippincott Company of Canada Ltd., 1966. 1074 p. Illus. \$42.00

This is the most recent form of a series of textbooks written by J. A. Salzmann during the past two decades. These works have become standard textbooks in the field of orthodontics. Well written and beautifully illustrated, *Practice of Orthodontics* is presented in two volumes. The author gives a fairly well rounded discussion of all phases of orthodontic theory and practice. This is demonstrated by the extensive list of references which has ensured that the material covered is balanced and of universal interest. The earlier material has been extensively updated and rearranged and has resulted in an excellent textbook.

The sections of the book covering growth and development, aetiology, classification of malocclusion, and radiography are especially well covered. This emphasis on the basic aspects of orthodontic theory and diagnosis is in keeping with the modern approach to orthodontic education. The section on the assessment of skeletal age is a useful addition to an orthodontic textbook and the inclusion of considerable information on adult orthodontics should prove valuable.

Any textbook which tries to give detailed coverage of all aspects of orthodontics will undoubtedly contain sections which are not given adequate attention. For example, in the book under review, the section dealing with the muscles of the jaws and basic muscle physiology was disappointing in that it did not receive sufficient emphasis. Relegation of the section on tissue changes during orthodontic treatment to near the end of the second volume also seems inappropriate.

The author considers that "strict adherence to one system of appliances is not the best means of obtaining uniformly satisfactory results in orthodontic therapy." While I do not entirely share this view, it broadens the approach to appliance therapy in this book. However, space requirements make it impossible for the author to cover, in detail, the various types of orthodontic appliances. Therefore, the sections on specific appliances should only be viewed as introductory reading by the serious student of orthodontics.

As a broadly based and, for the most part, comprehensive treatise on orthodontics, this book is an excellent addition to the literature available for the practising clinician and student of orthodontics.

J. F. Cleall

Additions • Acquisitions

- AMERICAN DENTAL ASSOCIATION. Guide to dental materials. Ed. 3, 1966. 188 p. \$2.60
- AMERICAN ASSOCIATION OF DENTAL SCHOOLS. Proceedings of the 42nd Annual Session. Toronto, Ontario, Canada, July 25-28, 1965. Chicago, AADS. 255 p.
- BEATON, G. H. AND McHENRY, E. W. ed. Nutrition; a comprehensive treaty in 2 volumes. Vol. I. Macronutrients and nutrient elements. 547 p.
Vol. II. Vitamins, nutrient requirements, and food selection. 551 p. New York, Academic Press, 1964. \$40.00
- BERTOLINI, A., CORVI, G. and BRUSOTTI, C. A new instrument for desensitization, therapeutic paradontopathy and prophylaxis of dental decay. Italia, Laboratorio "Bera." 31 p. illus.
- BLADEN, V. W., DUGAL, Ls-P., McCUTCHEON, Hon. M. W. and ROSS, H. I. Financing higher education in Canada. Report of a Commission to the Association of Universities and Colleges of Canada. Toronto, University of Toronto Press, and Les Presses de Laval, 1965. 92 p. & tables.
- BLIX, G. ed. Nutrition and caries prevention. 3rd Symposium on nutrition sponsored by the Swedish Nutrition Foundation. Sweden, Almqvist & Wiksells, 1965. 130 p. illus. \$7.95
- BRITISH DENTAL ASSOCIATION. Dentists and the National Health Service. London, British Dental Association, 1965. 30 p. Fig. 8.
- BURKHARDT, J. A history of the Academy of Stomatology, Philadelphia, Penna. 1964. 52 p. Mimeo. \$5.00
- CLARK, H. B., Jr. Practical oral surgery. Ed. 3. Philadelphia, Lea & Febiger, 1965. 503 p. illus. \$11.00
- DOUGLAS, B. L. Dental care for the special patient: handicapped — chronically ill — aged. (Practical Dental Monographs, Jan.-Feb., 1966.) Chicago, Year Book Medical Publishers, 1965. 28 p.
- FRISCH, J. E. Trends in the evolution of the hominoid dentition. Bibliotheca Primatologica. Fasc. 3. New York, S. Karger, 1965. 130 p. illus. \$7.00
- GABRIEL, A. C. Anatomy of teeth and jaws. Sydney, Australia, University of Sydney Press, 1965. 164 p. illus.
- GEOFFRION, P. L'arco gemellare; il metodo di J. E. Johnson e sua applicazione alle anomalie maxillo-faciali secondo la classificazione. Firenze, Res, 1964. 157 p. illus.
- GEORGIA DENTAL ASSOCIATION. History of dentistry in Georgia. 1962. 155 p. illus.
- GILBERT, D. W. Breaking the reading barrier. Englewood Cliffs, N.J., Prentice-Hall, 1959. 275 p. \$5.20
- GUYTON, A. C. Medical physiology. Ed. 3. 1966. 1210 p. illus. \$17.30
- KETTERING LABORATORY (CINCINNATI). Fluoride abstracts, 1963-1965. No. 4 Suppl. to: Annotated bibliography The occurrence and biological effects of fluorine compounds. Vol. 1: The inorganic compounds. Prepared by I. R. Campbell, and I. P. Kukainis. Cincinnati, Jan. 1966. 93 p. \$7.00
- MOLLIN, A. D. Universal light arch technique for treatment of malocclusion. Brooklyn, Leo. L. Bruder, 1966. 200 p. illus. \$22.00
- MORRIS, H. L. Cleft lip and palate; criteria for physical management. A report of a conference. Iowa City, University of Iowa, 1963. 110 p. illus. \$1.00
- NEW YORK ACADEMY OF MEDICINE. Closing the gaps in the availability and accessibility of health services. The 1965 Health Conference of the New York Academy of Medicine. Bulletin of the NYAM Second series, Dec. 1965. Pages 1197-1401.
- OGILVIE, A. L. and INGLE, J. I. An atlas of pulpal and periapical biology. Philadelphia, Lea & Febiger, 1965. 395 p. illus. \$5.50
- PAGANO, J. L. Anatomia dentaria. Buenos Aires, Editorial Mundi, S.A., 1965. 662 p. illus.
- SARGENTI, A. Local anaesthesia in dentistry. Edited and translated by J. R. Moore. London, Henry Kimpton, 1966. 78 p. illus. 15s
- TOLLEFSON, E. A. Bitter medicine; the Saskatchewan medicare feud. Saskatoon, Modern Press, 1963. 235 p.
- YEARBOOK OF DRUG THERAPY, 1965-1966 Series. Edited by Harry Beckman. Chicago, Year Book Medical Publishers. 608 p. \$9.90

Perils of procrastination

Despite Ottawa's decision to postpone the national medicare program for one year, nothing has occurred to remove the spectre of further governmental incursion in the provision of dental care services. It is prudent, therefore, that the profession should be armed with a plan of its own which could guide the legislators. That is why last June the Board of Governors of the Canadian Dental Association instructed the Dental Services Committee to design a dental health plan for Canada's children.

Similar reasons must have moved the House of Delegates of the American Dental Association one year ago when that body directed ADA agencies to develop a national dental health program for American children. Evidently, this action came none too soon, for on April 8 of this year President Lyndon B. Johnson, in an address in San Antonio, Texas, issued his own call for a national dental care program for children. Spurred by the president's pronouncement, the ADA's Board of Trustees in August approved a program which had been drafted during the interval. This plan will be considered next month by the House of Delegates at the ADA's annual session in Dallas.

In April, too, the Board of Trustees of the Michigan State Dental Association directed the Dental Care Committee of that association to design a dental care program for all of Michigan's children. With equal speed, the committee assembled necessary data on population, dental manpower, facilities and cost and drafted a tentative state-wide preventive and care program by early this fall.

Meanwhile, nearly six years have elapsed since that fateful December 21 when our own Mr. Diefenbaker first proclaimed Ottawa's resolve to study the nation's requirements and deficiencies in health care as a prelude to the establishment of a national health plan. During the interval, the Hall Royal Commission on Health Services has come and gone. Its monumental report, buttressed by no less than 26 special studies, has made an indelible mark on the fabric of our health services. In it the Commission put forward a children's dental care plan but most dentists were less than ecstatic about it, claiming that the proposal would result in two unrelated dental services for adults and children. This attitude was reinforced by vigorous objection to the New Zealand style dental auxiliaries and children's dental clinics inherent in the Hall Commission's plan. And so this plan was rejected by the profession which countered with a series of principles and a list of dental services but offered no actual alternative plan of its own. Perhaps this may have been inevitable but one wonders why it has taken so long to reach the present position in this country when the American Dental Association could devise in little under

12 months a plan that may ultimately bring systematic dental care to 98 million children by 1985.

Lending urgency to the situation are Ottawa's repeated pronouncements that Canada will have a comprehensive dental service program by the 1980's. Even more portentous are the press statements attributed to Saskatchewan's health minister who seemingly cannot wait for his province's new dental school to make its presence felt and wants, instead, to start training New Zealand type dental nurses right away.

The dental profession has the capacity to design sound dental care programs and then help to put them into operation. It may be debatable whether any plans, had they been available, could have deflected Ottawa and Regina from their present course. But it seems likely that the existence of a program developed by the profession could at least have aided the dentists of Saskatchewan at this delicate juncture. And it is equally manifest that without a plan of their own dentists may at any moment have to accept what is offered by government or scramble around for the best alternative — both uninviting prospects. Availability of a sound program, developed by dentists, could ensure an orderly and progressive evolution for dental practice in Canada. More important, it could provide our nation with one of the best bargains ever offered.

Que fait-on de notre argent?

Il y a quelques mois, le rédacteur du *Journal de l'Association dentaire canadienne* et son adjoint ont publié chacun un éditorial, l'un en anglais, l'autre en français. Ils ont tenté d'expliquer les difficultés financières auxquelles ils ont à faire face pour produire un Journal qui soit viable économiquement et qui réponde aux besoins et aux goûts extrêmement variés des lecteurs. Le budget du Journal étant très étroitement lié à celui de l'Association, il est à peu près impossible d'étudier les problèmes financiers du Journal sans s'attaquer également à ceux de l'Association dentaire canadienne.

D'où l'ADC tire-t-elle ses fonds? Comment dépense-t-elle son argent? Que fait-elle pour ses membres? Et que sera-t-elle appelée à faire pour eux à l'avenir? Les 6,215 membres de l'ADC ont droit d'obtenir une réponse précise à chacune de ces questions, car sans cela ils ne pourront pas aider à tracer une ligne de conduite réaliste et progressive pour l'organe officiel de leur Association.

En 1964 — année typique — le revenu de l'Association a été de \$307,095. Deux tiers de ce montant (\$219,098) provenaient d'octrois fournis par les membres corporatifs, c'est-à-dire les organismes représentant légalement chacune des provinces auprès de l'ADC. La publicité et les abonnements au Journal ont constitué un revenu de \$67,746. La vente de pamphlets publiés par l'Association a rapporté \$12,273. Le congrès a fourni le surplus de \$6,237, les contributions de membres associés \$1,109, les intérêts du Fonds de recherche dentaire canadienne \$632.

Malheureusement, les dépenses pour 1964, au total \$384,487 ont dépassé le revenu de \$17,392. Les salaires, pensions et bénéfices marginaux des employés de l'Association, de même que les dépenses de quelque cent dentistes qui siègent

sur les différents conseils et comités de l'Association sont responsables de la plus grande portion des dépenses, soit \$139,060. Le coût de production du Journal et les commissions des agents publicitaires représentent une autre partie importante des dépenses \$64,091. La publication des pamphlets et des mémoires soumis aux différentes agences gouvernementales a coûté \$26,690. Les frais de bureau, de poste, de télécommunications, les frais légaux, comptables, le chauffage, l'électricité, les taxes, l'entretien, la dépréciation et les assurances, ont ajouté \$38,854 au débit. La réunion annuelle du Conseil des Gouverneurs a coûté \$16,328. \$12,827 ont été dépensés pour les bourses d'étude destinées non seulement à aider à la préparation des chercheurs et des professeurs de demain, mais aussi à fournir des emplois d'été à des étudiants qui s'intéressent à la recherche. \$7,227 ont été dépensés pour les contributions à la dentisterie internationale (Fédération dentaire internationale) et à l'éducation dentaire (Fonds canadien pour l'éducation dentaire et Collège Royal des dentistes du Canada). La bibliothèque de l'ADC a reçu son octroi annuel de \$1,500; enfin, \$15,000 ont été versés au fonds de réserve de l'Association.

Comptant et valeurs accumulées dans ce fonds représentaient à la fin de 1964 la somme de \$210,977. Certains mettent en doute la nécessité d'une réserve aussi importante. D'autres voient d'un mauvais œil le fait que l'on fasse un versement aussi important au compte de réserve à un moment où les dépenses excèdent les revenus et où le budget est déficitaire. Cependant, l'ADC croit qu'il lui faut se conformer aux normes financières voulant qu'une organisation sans but lucratif ait une réserve équivalente à deux fois son budget annuel. Le fonds de réserve qui est de l'ordre de \$200,000 et qui augmente lentement chaque année est donc loin d'être adéquat puisque ces standards voudraient qu'il soit de l'ordre de \$600,000.

Sachant maintenant en gros comment est dépensé notre argent, demandons-nous ce qu'un membre de l'ADC reçoit en retour de sa contribution. Où en serait le dentiste canadien s'il n'y avait pas d'association dentaire nationale?

D'abord le titre universitaire de la plupart des dentistes n'aurait qu'une valeur relative puisqu'il n'aurait pas d'équivalence avec le reste de l'Amérique du Nord. C'est en effet grâce à l'ADC qu'existe un organisme qui voit à la reconnaissance des facultés dentaires et de leurs programmes, et qui confère à nos diplômes une valeur reconnue dans toute l'Amérique du Nord. Grâce à l'ADC et au Bureau national d'examens dentaires, les dentistes peuvent aller s'établir à peu près n'importe où et obtenir leur droit de pratique sans voir leurs qualifications mises en doute. Sans le bénéfice de tels organismes, les nouveaux diplômés devraient s'installer aux environs de la faculté qui leur a donné leurs diplômes et les dentistes plus âgés ne pourraient déménager sans avoir à retourner à la faculté dentaire.

Certains lecteurs se souviendront qu'Ottawa imposait anciennement des droits de 25 à 30 pour cent sur l'équipement et les matériaux dentaires. En 1955, après des années de négociations, l'ADC a réussi à persuader le gouvernement fédéral d'exempter de ces droits la plupart des importations.

Par ses bourses, l'ADC encourage les recherches et les études spécialisées. Sans ce stimulus additionnel, plusieurs facultés dentaires n'auraient jamais pu obtenir les services de leurs meilleurs professeurs et la profession aurait été privée des progrès qu'a pu entraîner leur présence parmi nous.

Sans les plans d'assurance et de pension de l'ADC, deux dentistes sur cinq n'auraient pas de la protection et de la sécurité dont ils bénéficient aujourd'hui.

Le plan de pension de la profession dont les bénéfices fiscaux ne sont pas négligeables disparaîtrait aussi. Les membres perdraient ainsi l'occasion de mettre en commun leurs économies pour en bénéficier davantage plus tard.

Sans l'association nationale, les dentistes du Canada n'auraient probablement jamais pu obtenir le droit de déduire de leur impôt sur le revenu les frais encourus pour assister chaque année à deux congrès, et cela sans limite géographique. On peut dire la même chose des frais encourus pour assister à des cours post-scolaires, frais qui sont maintenant déductibles de l'impôt sur le revenu. Enfin, sans l'ADC, la profession n'aurait pas d'unité nationale et personne ne serait autorisée à la représenter auprès des ministres de la Couronne. Les gouvernements, de leur côté, trouveraient très difficile d'engager le dialogue avec une profession qui serait séparée en petits groupes, chacun cherchant son intérêt personnel.

Nous n'avons mentionné ici que quelques-uns des avantages que l'ADC apporte à ses membres. Il y en a probablement beaucoup d'autres. Cependant, l'important n'est pas ce que l'Association dentaire canadienne a fait dans le passé, mais bien ce qu'elle se prépare à faire à un moment critique de l'histoire de la profession dentaire. Il faudra bientôt faire face à des difficultés accrues, prendre des décisions, établir une stratégie et, pour cela, nous avons besoin d'une organisation nationale forte. Ce besoin est peut-être plus grand aujourd'hui qu'il ne l'a jamais été par le passé. C'est pour cela qu'il serait dangereux de cesser d'accorder tout notre support à l'Association dentaire canadienne et d'y préférer nos intérêts locaux. A la veille des Fêtes du Centenaire, il faut chercher à parfaire l'unité nationale de notre profession, et cela pour le plus grand bien de tous.

Le Fall Clinic de Montréal aura lieu du 22 au 26 octobre • Deux séminaires spéciaux, traitant de l'administration du cabinet et du plan de traitement précéderont le programme habituel de trois jours du 41e Fall Clinic du Montreal Dental Club. Toutes les séances auront lieu du 22 au 26 octobre à l'hôtel Reine Elizabeth de Montréal. Les 22-23 octobre, le docteur R. M. Wolff, pédodontiste, de Clayton (Missouri) discutera de l'administration du cabinet, de la motivation et de l'éducation du patient. Le Dr S. F. Dachi de Lexington (Kentucky) donnera un cours sur le diagnostic et le plan de traitement, pendant la même période. Le 24 octobre, le Dr Dachi donnera en français une conférence d'un jour sur les effets pulpaire et biologiques des procédés de restauration. Les autres conférenciers du congrès sont: le Dr A. A. Brewer, chirurgien-dentiste de l'US Air Force Headquarters Command, qui parlera de la pratique et de la recherche en prosthodontie; le Dr D. R. Jordan de l'Indiana University School of Dentistry, qui traitera des prothèses partielles amovibles et des moyens de prévenir la perte du support alvéolaire; le Dr M. E. Lucyk de la Faculté dentaire de l'Université de Toronto, qui parlera du traitement endodontique en une séance; les Drs J. K. Chastain, Stanley Sturman et K. L. Tharp, de Louisville (Kentucky) qui exposeront leurs vues sur les articulateurs et l'occlusion. Deux panels de dentistes montréalais discuteront de prothèse fixe et de la dentisterie opératoire. Le programme comporte aussi des films et des cliniques de table.

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

■
Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

Remuneration for Hospital Dentists

To the Editor:

I was most interested to see the letter from Dr. Screech ("That what we have we prize not") in your August issue.

The intern dental surgeon at the Winnipeg General Hospital has only just qualified and is offered the post so that he may obtain training and experience in hospital dentistry. At the same time, he gives a 24 hour service, seven days a week, to the hospital and carries the responsibility for the services he renders his patients. The salary offered is just as much an offence to Dr. Screech as it is to me. But, until Dr. Screech and the entire profession as enlightened taxpayers are willing to pay more tax so that the provincial governments, hospital authorities, and universities of Canada can offer some attractive salaries for full-time hospital appointments at the junior level, this sort of situation will continue to exist.

We hope that the incumbents of this post will, in the future, become valuable members of the dental profession as full-time hospital consultants and teachers. Even then, it is quite likely that their salaries will never be commensurate with those obtainable in private practice.

The orthodontic technician at the University of Manitoba will be a skilled and highly valuable man and he deserves the consideration being offered in this post. It is unlikely that he will ever have the responsibilities of a hospital consultant in the future and, thus, be unlikely to earn quite the equivalent salary that the intern dental surgeon should look forward to as a full-time hospital consultant, although I realize in this modern technological age that even this situation is not beyond the realm of possibility.

In conclusion, I would suggest that the emolument in private practice has given the dental practitioner a highly myopic view of his value to society.

J. R. Trott, MDS,
Associate professor, Department of Oral
Pathology, University of Manitoba,
Winnipeg, Man.

Children's Dental Plan

To the Editor:

Dr. Hunt is to be congratulated for his excellent article. I believe that further comment must be given regarding the busy practising dentist's lack of awareness about the lack of treatment and low demand for care by two-thirds of the population.

Firstly, the dentist's educational background is mostly concerned with treatment. There is little or no emphasis on basic economics, sociology or political science. Also, even though we know that prevention, not treatment, is the key to the future of dentistry, most dentists cannot find the time during their busy treatment schedule to practise prevention actively and adequately. Thirdly, most dentists practise in urban centres. Consequently, once they have reached their quota of approximately 850 patients, any new patients are refused and it is assumed that they are treated else-

where. Unfortunately, many people do not obtain treatment elsewhere except in emergencies. Dentists in rural areas are more aware of these problems because they are often expected to provide care for 3,000 or more patients in the same manner as that given in urban areas.

Thus, it becomes increasingly evident that more supervised auxiliary help is needed to do routine amalgam and silicate restorations. Obviously the place to start is with school age children.

Not too many years ago the profession faced the problem of having dental hygienists assist in periodontic and public health programs. We all know that hygienists provide an integral and essential service in dentistry. We also know that by virtue of their education they can safely and carefully work in patients' mouths. Surely with comparable education and supervision a similar program can be implemented for routine operative dentistry.

As Dr. Hunt summarized in his article, "A well planned program using simplified techniques implemented with a definite preventive program can only lead to improved dental services without a loss of professional freedom." Which way dentistry will go can only be decided by men who openly face the facts and implement dental service to the public.

W. A. Murphy, DDS,
P.O. Box 585, Stouffville, Ont.

To the Editor:

I read with interest Dr. Hunt's paper and, as a practising dentist, I feel it my duty to make certain comments.

Thirty-five years of my life have been devoted to practice, teaching and public health work, and during that time I have pioneered continually for better health for children in urban and rural areas. Thus, I feel qualified to take issue with the philosophy expressed in this paper.

Dr. Hunt relies heavily on statistics to prove his points and lays particular emphasis on the dental manpower in relation to population. These statistics sound startling, but when one considers that these figures include the infant population and the denture wearers, the comparison may not be so spectacular. The author seems to dwell on the shortage of dentists, and it is interesting to note that throughout his paper he hints at being in favour of auxiliary personnel for children in preference to moving slowly towards a goal of more trained dentists, which would keep the autonomy of the profession intact and, at the same time, would guarantee the public a higher standard of service.

I strongly take issue with this remark made with respect to the practising den-

tist: "Traditionally, he has not been too aware of the fact that two-thirds of the population receive little dental care, that demand for dental care is low and that services are lacking in a large part of the country because he seldom is faced with these problems."

In the rest of his paper Dr. Hunt has been most careful to back up his statements with statistics, but he makes no effort to qualify the foregoing statement. This is understandable, since he spent a very short period in practice and the greater part of his career at a research desk. Only recently was he appointed to the post of professor of dental public health. He has gained an international reputation for research on strontium⁹⁰ but if he had gained a broader experience in practice or had at some time served on the voluntary dental public health committee, he would not have made such a statement.

The dentists of Canada are very much aware of the situation with respect to dental services and it is because of their awareness that they, through their voluntary committees, have been able to raise public opinion to a point where governments have been encouraged to give large grants for dental schools.

Dr. Hunt also mentions a recent Ontario Dental Association survey where 85 per cent of the dentists were not in favour of the proposals set down in recommendations 39 to 41 as outlined by the Hall Commission. This statement would have been strengthened if it had been mentioned that this survey was conducted by a very reputable firm known as the Gallup Poll. The author also chose not to tell the whole story, when he neglected to mention that 74 per cent of the parents who were polled agreed with the opinion of the dentists, and 72 per cent indicated that they had a family dentist for their children. In his survey he makes no attempt to set forth any data with respect to public desires as to who should treat their children.

Dr. Hunt seems to make light of the dentists' opinion with respect to distribution and, because of lack of experience, he fails to recognize that all professions are faced with the problem of distribution. Even if we train auxiliaries or set up a thousand investigating committees of the type he suggests, we will still be faced with this serious problem. One has only to become acquainted with the lack of success experienced by rural dentists in encouraging dental hygienists to leave the city, to understand the problem.

Dean Walsh's report is quoted, wherein it is stated that 90 per cent of 5 to 13 year old children receive semi-annual attention from dental nurses while children requiring more complicated forms of treatment are referred to the dentist. Dr. Walsh makes no attempt to spell out for us the compli-

cated forms of treatment or the prevalence of such conditions. One wonders how dental nurses can diagnose such conditions, when we are told that they are restricted in gaining knowledge about such matters as growth and development. Dr. Hunt's report goes on to say that space maintainers are rarely required because virtually no spaces are created by extraction of teeth. Here, again, we find the report generalizing, and, since only 50 per cent of the parents seek preschool services, one finds it hard to believe that few space maintainers are necessary. I hasten to add that, in my 35 years of conducting a practice for children, my main interest has been the question of space maintenance, and it has been my experience, and I am sure that of other practising dentists, that the need for space maintainers has been the result of neglect in the preschool child. Dr. R. G. Ellis' report (January 6, 1951) indicated that such neglect did exist in New Zealand; yet Dr. Hunt chooses not to mention this. I only wish the author had gone further in his survey and made some attempt at comparing the curriculum of the dental schools in New Zealand with that of American dental schools. He might have found an answer to the reason for the New Zealand dentists being so willing to treat the adult and turn the children over to auxiliaries. We all recognize that the teaching in Canada 30 years ago would have left the dentist with a feeling that auxiliaries should be good enough for children, but today we have not only dentists educated in this field, but also an enlightened public unwilling to accept a plan that will set us back many years.

Frankly, one finds it hard to ascertain the reason for Dr. Hunt's sudden interest in the care of the child, for, to my knowledge, he has never been a member of, or shown interest in, the Canadian Society of Dentistry for Children. One also finds it hard to believe that someone who has been so closely associated with the biological sciences would be willing to take away from the dentist that phase of his professional work that is dependent on biological knowledge. I am sure if Dr. Hunt had pioneered under the difficult circumstances that most of us have experienced in building dentistry for children to where it is today, he would not look on this phase of dentistry as a mere patching of teeth. I am also sure that, if he had been willing to take up the challenge open to him in many health units desperately in need of a dental public health officer, he would have gained experience that would have qualified him to write such an article and, as well, his thinking would have had a more realistic outlook.

In closing, might I say that Dr. Hunt has a perfect right to express his opinion, and I hope his article will do much to arouse the practising dentist to the fact that he must

not rest on his oars and be content to let the sociologist, the researcher, the full-time educator and the administrator take the full responsibility of dictating the future course of clinical practice.

S. A. MacGregor, DDS,
Professor and head of the Paedodontic
Department, Faculty of Dentistry,
University of Toronto.

These letters were referred to Dr. Hunt who replied as follows:

To the Editor:

Thank you for the opportunity of replying to the comments by Professor S. A. MacGregor on my article "Planning for dental health services in Canada."

I am afraid that my colleague has missed the main points in the paper which was inspired by one brief passage in the 1965 *Transactions* of the Canadian Dental Association: "The Canadian Dental Association is opposed to the establishment of the Children's Dental Program [designed] by the Commission." I thought that a strong statement in favour of a children's program, designed by the dental profession, would have been the only logical answer to the Commission's proposal under present-day political conditions. I recommended the formation of a committee to design a children's program that would be acceptable to the dental profession, the people and their representatives in government. Professor MacGregor thinks that a thousand committees of this type will not solve the problem of manpower distribution. I do not share his lack of faith in the ability of Canadian dentists to arrive at a solution. Several events have occurred in the interval between the time the paper was written in 1965 and the time of its publication. Canada's Health and Welfare Minister said that a comprehensive dental service program may be installed by the 1980's. The Health Minister of Saskatchewan is not willing to wait that long. He released press notices in July stating that he would have talks with the Saskatchewan College of Dental Surgeons on the subject of training nurses of the New Zealand type. He sees no reason why agreement cannot be reached on this matter. I think my colleague would agree that a detailed dental health plan would have been most useful to the Saskatchewan dentists in their present negotiations with government. Fortunately, the Canadian Dental Association has now taken the realistic and commendable action of instructing the Dental Services Committee to develop a dental health plan for children. I have great confidence that dentists will carry out their obligations to children while rec-

ognizing that impending health legislation in Canada does not permit discrimination by means tests.

Before proceeding to specific statements and questions in Professor MacGregor's letter I am sure that he would wish me to correct the impression that I am a naive individual who "spent a very short period in practice and the greater part of [my] career at a research desk." Actually, I practised for three years in the Canadian Dental Corps and for eight years in Stratford. The total time of 11 years is greater than my nine years on the full-time staff at the University of Toronto. I have a Diploma in Dental Public Health and an MScD with the major interest in nutrition, a public health discipline. I have conducted research in the broad public health problem mentioned and in the fields of bone and tooth development and periodontic disease. In addition, I have had extensive teaching duties in fields related directly to public health. I am a member of a number of national and international research, dental and public health organizations and committees. I am a member of the North York Board of Health which is responsible for the largest children's dental treatment program in Canada. Recently I helped redesign the program to embody principles of education, prevention and incremental dental care. While my 23 years in practice, postgraduate education, teaching and research do not match in time my colleague's 35 years in practice and teaching, I believe that they have permitted development of the broad perspective required to deal with public health problems.

I am certain also that Professor MacGregor would wish me to dismiss certain statements and implications that he inadvertently attributed to me but which were not contained in my paper. Nowhere in the paper did I hint at a preference for auxiliary personnel for children over the goal of more trained dentists. I did say that "second choices may be unavoidable" which indicates a distinct preference for the training of more dentists (but not at a slow rate). I did not say or imply that I was "willing to take away from the dentist that phase of his professional work that is dependent on biological knowledge." Most emphatically, I did not say that I "look on this phase of dentistry as a mere patching of teeth." I have made no attempt nor do I wish to "dictate the future course of clinical practice."

I do like to rely on forms of statistics that measure things accurately. For example, dentist population statistics indicate that Canadians receive one-third less dental care than Americans who consider that they will have difficulty in meeting the demands of their own newly proposed children's program. However, my colleague would like me to quote a less reliable form of statistics, the public opinion survey, to "set forth data with respect to public de-

sires as to who should treat their children." He made an unfortunate choice. The Gallup poll gave some excellent information but this particular question asked parents to state whether they preferred to have dental services performed by dentists with five years' training or girls with two years' training. No other qualification was given. It was a biased question and would likely have produced the same results if parents were asked to indicate a preference for dentists with five or two years' training.

Professor MacGregor refers to other errors and omissions in my paper. My reference to the busy dentists' lack of awareness of the general state of dental health of two-thirds of our countrymen was not meant to be derogatory. The majority of dentists are not engaged in public health or in broad surveys where one sees the neglected children who seldom appear in dental offices and who are anonymous other than as statistics. I do, at least, agree with my colleague on the subject of space maintainers. The statement would have been more precise if I had said that space maintenance is a great problem in Canada. It is not as great a problem in New Zealand where the children have fewer missing teeth. Professor MacGregor also said that I preferred not to mention Dr. Ellis' report on New Zealand auxiliaries. The report was not published and no copies were available in the Toronto libraries. Dr. Ellis was kind enough to obtain a copy for me after a diligent search. It contained the statement that "nurses thought they saw 50 per cent of the available preschool children." This was the same percentage quoted in my paper. A comparison of the New Zealand and the American dental professions was beyond the scope of my paper.

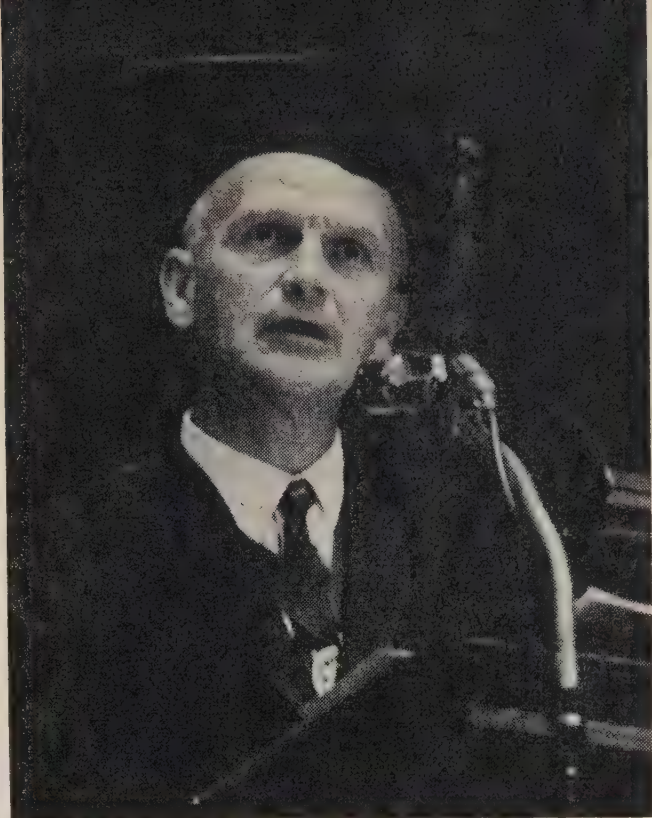
Finally, Professor MacGregor is concerned about my sudden interest in the care of the child. My interest is not "sudden." I had a family practice for eight years and I have a warm concern for the welfare of children. When one is engaged in teaching dental public health to undergraduate and graduate students one deals objectively with all of the important topics in that field. I consider the dental health of children to be of immediate concern for moral reasons and for the very practical reason that governments are calling on our profession to provide the necessary care.

I wish to thank my colleague for his spirited discussion that has brought my paper to the attention of Canadian dentists once again.

A. M. Hunt, DDS,
Professor of Dental Public Health,
Faculty of Dentistry, University of Toronto.

Further correspondence on this subject will be published in November. (Ed.)

**Address delivered at the
inaugural convocation of
the Royal College of
Dentists of Canada**



It is always a privilege to be invited to address a body of clinicians, but to give the address at the opening of a new Royal College is an unprecedented honour.

In Great Britain, since 1856, the Royal College of Surgeons of England has granted a Licence in Dental Surgery which entitles a man to practise the art and craft of dentistry. But 19 years ago in Great Britain, a body of men, such as yourselves, formed a Faculty of Dental Surgery in the Royal College of Surgeons of England. There were many dental schools in Britain — all primarily concerned with undergraduate dental education — but there was no organization related to postgraduate dentistry in Britain. The Council of the Royal College of Surgeons of England instituted the Fellowship in Dental Surgery. This was a two part examination — a primary test in the basic sciences and a second part which examined a candidate to a high standard in general dental surgery, including a practical examination. This examination was based on the existing Fellowship in General Surgery and throughout, the intention of the Board of Faculty has been to parallel the existing training and the existing examinations which exist in similar medical specialties.

This fellowship examination is now accepted in Britain as the qualification for specialist practice.

We have suggested standards and the time of formal training for those specialties of dentistry which are worthy of formal training, and again this formal training parallels exactly the training in similar specialties of medicine.

As a result of this parity of academic attainment of training, the dental specialist in Britain is treated exactly the same as a specialist in medicine. If he works for the state, his financial reward is exactly the same. If payment is made to a specialist in dentistry through an insurance society, then the payment is based on the identical figure that it would be for any other specialty of medicine.

This I think is of fundamental importance. We as a profession have never sought superiority over other medical specialties, but we have always desired parity, and this parity can only be achieved through the planning of a chartered body like this new Royal College of Dentists of Canada.

To me postgraduate dentistry in Canada is in the same position that it was in Britain many years ago. I may be wrong, but I am under the impression that

if any Canadian graduate desired to practise a specialty of dentistry, it has in the past been necessary for him to leave Canada to get this necessary training. It is not to the credit of the dental profession in Canada when they do not provide facilities for advancement in this field.

We accept today that dentistry has advanced considerably from the days when one dentist did everything. It is no longer possible for a dentist to be an expert in every field of his profession; but may I repeat a word of warning — a warning that has been uttered in the past by other clinicians in dentistry. There is a grave danger of over-specialization, and such over-specialization can lead not to the advancement, but to the fragmentation of our profession.

I accept the fact that specialists in small fields are essential in teaching hospitals to instruct undergraduates in that branch of their work. I do not consider it necessary that every community should provide practising specialists in these minor specialties.

In Britain we recognize but two specialties of dentistry — oral surgery and orthodontics and, indeed, the Fédération Dentaire Internationale recognizes these two subjects as the only ones worthy of specialization, despite pressure from other sources to bring a multitude of skills into the specialist field.

You as a College must consider whether or not a specialty of dentistry is worthy of a prolonged period of formal training. I would ask you to bear in mind when establishing this formal training to consider the equivalent training used in medicine in similar specialties in Canada. Only if the specialty justifies formal training over a prolonged period of time could it be considered worthy of specialist designation.

I would like to see this Royal College of Dentists of Canada prescribing examinations which could be accepted on a reciprocal basis with examinations in other countries. I would like to see our young graduates having part of their training in Canada and part of their training in Britain. I would like to see it a two-way traffic, when young men from Canada could take examinations in Canada and have further education in Britain. In this way standards must be raised incredibly and a Canadian dentist with the requisite post-graduate qualification will be able to practise his specialty in most countries in the world.

I envy the Council of this Royal College. You have no tradition behind you, but you can draw on the experience of all other similar bodies. You have no precedent which could inhibit a revolutionary concept in education. You are a new young virile body with all the future in front of you and no past to inhibit you.

There will be a common market in medicine in Europe by 1967. Ultimately there will be a common market in world medicine with basic standards of syllabus and training. You have an opportunity to create standards which will fit not only into a national pattern, but which could well be a pattern for the whole world.

I speak as the Dean of the Faculty of Dental Surgery of the Royal College of Surgeons of England. I present to you, Mr. President, an Address from the Board of our Faculty of Dental Surgery. We welcome the concept behind this Royal College. We know its future work will make a magnificent contribution to Canadian dentistry, and indirectly to the general dental care of the Canadian population.

We hope that the two Royal Colleges can work in the closest harmony with a common object in view. We wish you every success. We wish you well.

T. G. Ward

Simple ameloblastoma with an interesting vascular component

D. G. Gardner,* DDS, MSD, London, Ontario and J. D. Spouge,† MDS, FDS, MRCS, Vancouver, British Columbia

Progressive enlargement and subsequent haemorrhage necessitated the excision of an extensive ameloblastoma in the mandible of a 76 year old woman. The microscopic findings of this tumour support the contention that the so-called haemangioameloblastoma represents simply a degenerative change in an ameloblastoma having a plexiform pattern.

■

On a dû faire l'excision d'un améloblastome important situé à la mandibule d'une patiente de 76 ans. La tumeur grossissait progressivement et entraînait des hémorragies. L'étude microscopique de cette tumeur semble supporter l'hypothèse qui voudrait que les hémangioaméloblastomes ne soient qu'un améloblastome plexiforme ayant subi des changements dégénératifs.

patient's advanced age, poor physical condition and severe mental disturbance. Radiographs showing the progressive and marked enlargement of the lesion during this period are available. Second, surgical intervention was precipitated by a severe haemorrhagic episode, a feature not commonly associated with ameloblastomas. Third, microscopic examination showed this ameloblastoma to be of the plexiform type but having features which provide support for one concept concerning the histogenesis of the so-called haemangioameloblastoma.

CASE HISTORY

The patient, a Caucasian woman, aged 70 years, was admitted to a mental hospital in 1949 with the diagnosis of senile paranoid reaction. On admission she had an asymptomatic swelling of the right mandible measuring 5x3 cm. (Figure 1), with no evidence of associated lymphadenopathy.

Approximately three years previously the patient had suffered from 'a dental abscess' following extraction of her man-

This case is reported for three reasons. First, the ameloblastoma was kept under observation for six years because of the

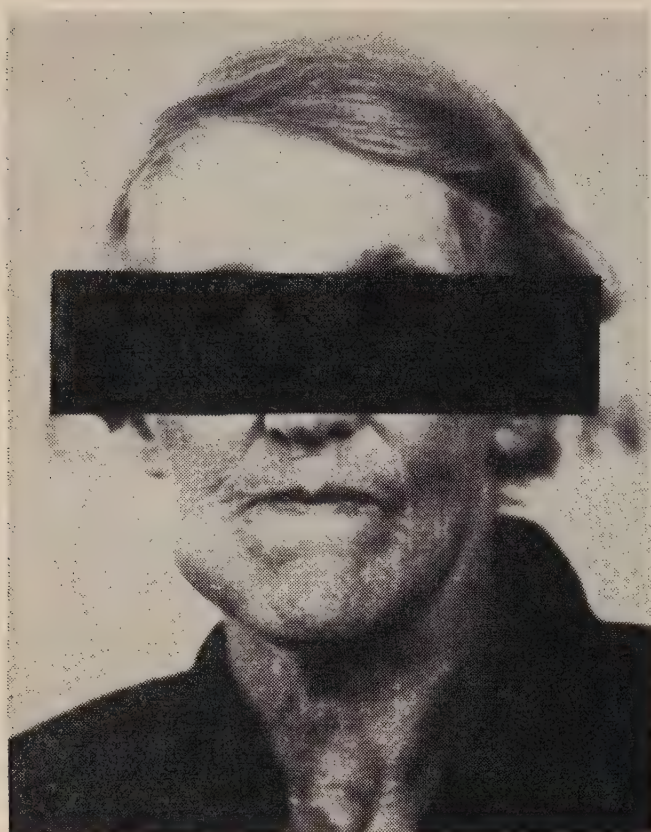


FIGURE 1 The appearance of the patient at admission in October 1949.

dibular teeth. The abscess was drained and the acute symptoms subsided. However, a short time later a lump, which progressively enlarged, developed on her right mandible.

Because of the patient's mental condition and advanced age, it was decided to keep the lesion, which was diagnosed as an ameloblastoma, under observation. Radiographic examination was performed on admission (Figure 2) and periodically thereafter; two of these films are shown in Figures 3 and 4.

By 1953 the tumour involved the floor of the mouth but was causing no pain and little inconvenience. Further rapid enlargement subsequently took place and in 1955 a severe intra-oral haemorrhage occurred which was controlled by local measures. Although the patient's haemoglobin had previously been known to be low, following this haemorrhage it was only 29 per cent. Accordingly, blood, intravenous iron and antibiotics were administered. A second minor haemorrhage occurred two days later and was controlled without difficulty.

The physical condition of the patient improved sufficiently for her to undergo surgery which involved the removal of the entire right mandible and the body of the left mandible. Postoperative recovery was uneventful and there has been no recurrence up to the time of this report.



FIGURE 2 Radiograph of lesion at admission.



FIGURE 3 Radiograph of lesion in November 1951.

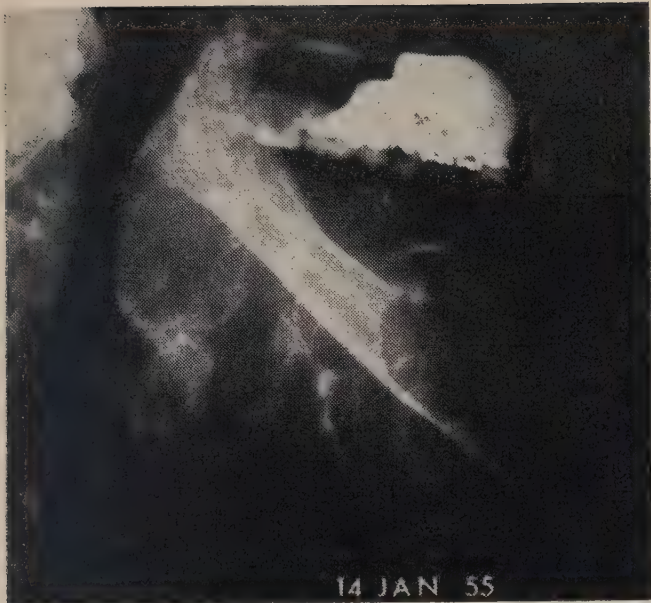


FIGURE 4 Radiograph of lesion in January 1955, just prior to surgery.



FIGURE 5 Gross specimen.

PATHOLOGICAL FEATURES OF THE LESION

Macroscopic Description.—The specimen consisted of a large multicystic mass attached to the right mandible and to the body of the left mandible (Figure 5). The tumour measured 13.4 x 7.8 cm. and was ulcerated on its mucosal surface. The cut surface was loculated and small fragments of bone were present throughout the tumour.

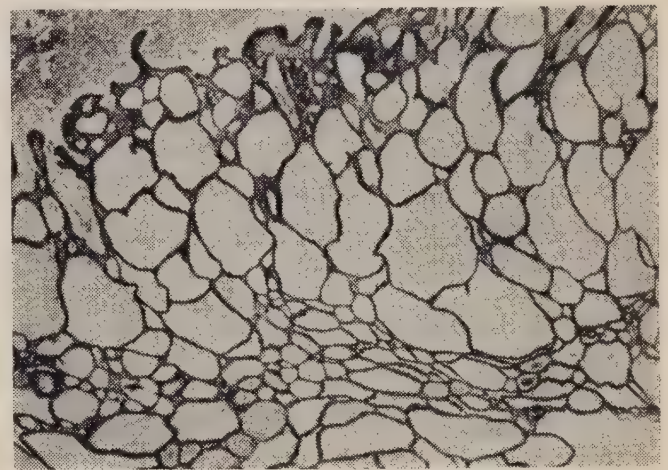


FIGURE 6 Microscopically, the tumour has a plexiform pattern. The encircled connective tissue exhibits varying degrees of degeneration. Haematoxylin and eosin; original magnification X 25.

Microscopic Description.—The tissue consisted of an elaborate network of anastomosing cords of odontogenic epithelium (Figure 6) and was divided into lobules by broad fibrous connective tissue septa in some of which small islands of newly forming bone were apparent. The epithelial cords surrounded cores of connective tissue stroma which exhibited varying degrees of degeneration (Figure 7). Dilated capillaries were evident within many areas of this stroma. In some cases these capillaries almost completely filled the spaces left by the disintegrating connective tissue (Figure 8a). Elsewhere they had apparently ruptured, leaving cavities filled with blood and therefore presenting a haemangiomatous appearance (Figures 8b, 8c). Finally, many of the connective tissue enclaves had degenerat-

ed completely, resulting in cavities surrounded by epithelium.

The histopathological diagnosis was ameloblastoma exhibiting a plexiform appearance and moderate vascularity.

DISCUSSION

Severe haemorrhage is not usually associated with ameloblastoma and in this case it may have been caused by tumour tissue eroding an adjacent blood vessel. Alternatively, the haemorrhage could have arisen from the tumour stroma for this was markedly vascular in some areas.

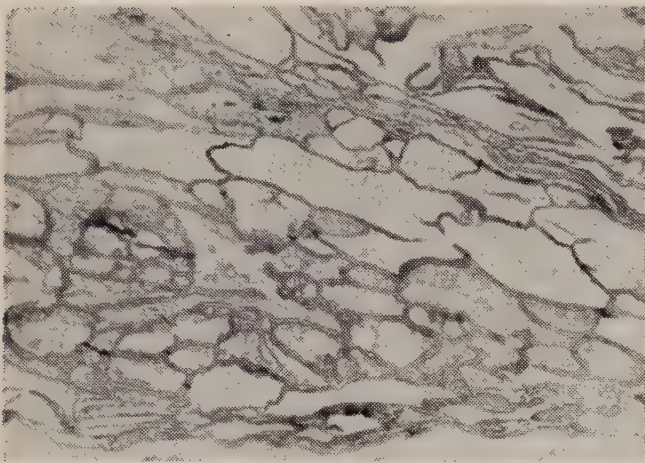


FIGURE 7 Argyrophilic connective tissue elements are still present within some of the encircling epithelial strands. They have disappeared in others. Gomori's silver impregnation method; original magnification X 25.

Histologically, the tissue represented a simple ameloblastoma which exhibited a plexiform pattern and degeneration of the stroma. Of great interest, however, were the focal, but relatively frequent, areas having a haemangiomatous appearance with erythrocytes filling the cavities enclosed by the ameloblastomatous epithelium. The stromal degeneration had reached the stage of definite cyst formation in many areas. Elsewhere, however, it presented a variety of appearances which formed a sequence ranging from foci in which the connective tissue disintegration had left capillaries as the last remaining structures (Figures 9a, 9b), developing through a stage in which the capillaries had dilated markedly, and culminating in a haemangiomatous pattern due to the eventual rupture of these vessels. The process just described illustrates a possible histogenesis of the so-called haemangioameloblastoma.

Vascular examples of ameloblastoma have been reported by Kühn,¹ Oesterreich,² Aisenberg,³ Lucas,⁴ Villa,⁵ Oliver, McKenna and Shafer,⁶ and by Shklar and Cataldo.⁷ Thoma and Goldman⁸ illustrate Ewing's case. Some of these investigators regard such lesions as true mixed tumours with neoplastic proliferation of both odontogenic epithelium and blood vessels. Accordingly, they have used terms such as haemangioameloblastoma to describe ameloblastomas having a marked vascular component.

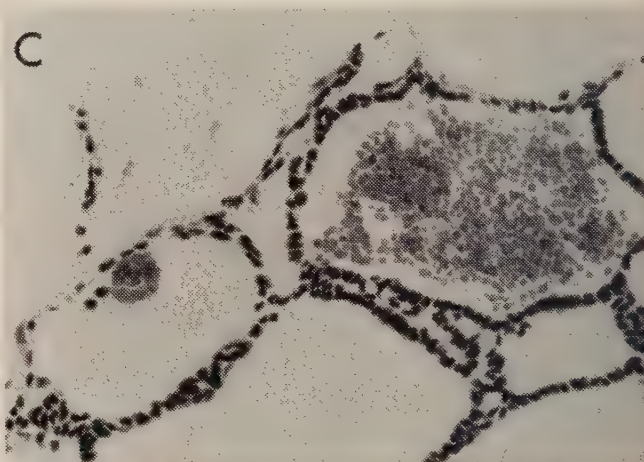
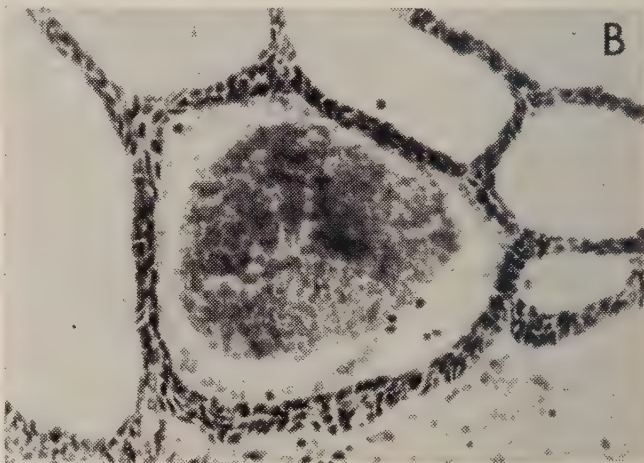
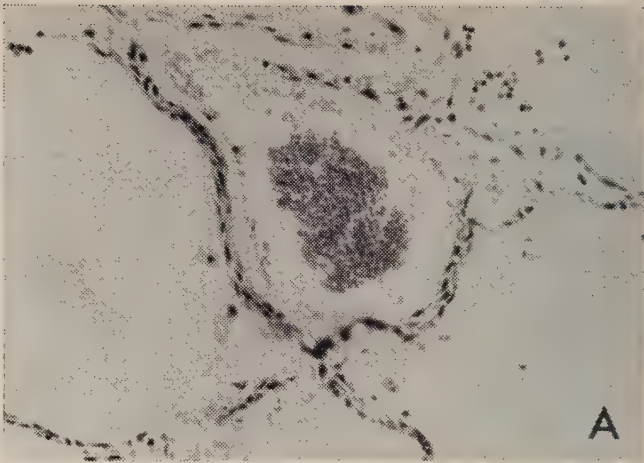


FIGURE 8 The haemangioma-like appearance results from either dilation or rupture of the capillaries. Haematoxylin and eosin; original magnification Figure 8a X 63, Figures 8b and 8c X 160.

Theoretically, there are two possibilities concerning the origin of such a mixed tumour. It might represent a 'collision tumour' formed by the intermingling of different neoplastic elements developing in the same general area, or the proliferating vascular structures might be an integral part of the neoplasm and due to

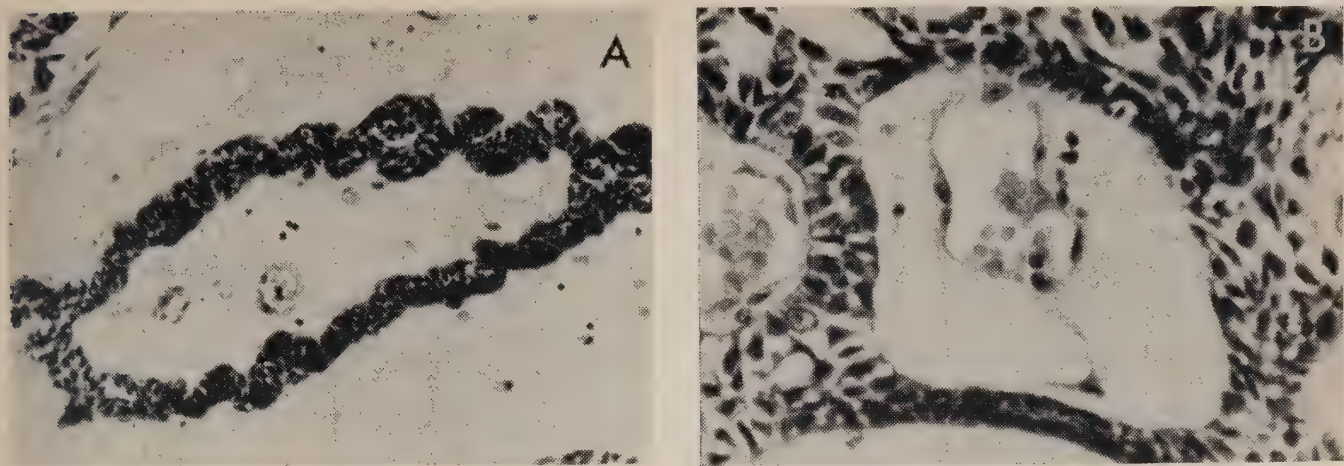


FIGURE 9 The vascular elements are frequently the last surviving structures within the connective tissue enclaves. Haematoxylin and eosin; Figure 9a X 160, Figure 9b X 400.

an inductive effect by the odontogenic epithelium on the stroma.

On the other hand, Lucas^{4,9} presents what is probably the most valid account of the true nature of the lesion and shows photomicrographs similar to our own. He feels that these vascular ameloblastomas probably result from degeneration in the plexiform type of ameloblastoma and in fact he favours the term 'vascular ameloblastoma,' as do Shklar and Cataldo.⁷ Gorlin and his colleagues¹⁰ also consider the increased vascularity of some ameloblastomas to be a degenerative phenomenon. Furthermore, these workers feel that there is no justification for the histological subdivision of the simple ameloblastoma because two or more of these subtypes may be found in a single tumour and also because there is no evidence of any associated difference in clinical behaviour or prognosis.

SUMMARY

A case of an ameloblastoma is presented. Because of associated clinical considerations, this case was followed for six years before a severe haemorrhage precipitated surgical intervention. The microscopic findings of this tumour support the

contention that the so-called haemangioameloblastoma represents simply a degenerative change in an ameloblastoma having a plexiform pattern. Therefore, this lesion probably should not be considered a separate entity.

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1. Kühn, A. Über eine Kombination von Adamantinom mit Hämangiom als zentrale Kiefergeschwulst. *Deutsche Monatschr. Zahnhe.* 50:49, 1932. Cited in Thoma, K. H. and Goldman, H. M. *Oral pathology*. Ed. 5. St. Louis, Mosby, 1960.
2. Oesterreich, H. *Histologische Fragen bei Operationen in der Mundhöhle*. Dissert., Leipzig, 1936. Cited in Thoma, K. H. and Goldman, H. M. *Oral pathology*. Ed. 5. St. Louis, Mosby, 1960.
3. Aisenberg, M. S. Adamantinohemangioma. *Oral Surg., Oral Med. & Oral Path.* 3:798, 1950.
4. Lucas, R. B. Vascular ameloblastoma. *Oral Surg., Oral Med. & Oral Path.* 10:863, 1957.
5. Villa, V. G. Hemangioma of the cavernous type associated with ameloblastoma (ameloblastic hemangioma). *J. Oral Surg., Anes. & Hosp. D. Serv.* 18:429, 1960.
6. Oliver, R. T., McKenna, W. F. and Shafer, W. G. Hemangioameloblastoma: report of a case. *J. Oral Surg., Anes. & Hosp. D. Serv.* 19:245, 1961.
7. Shklar, G. and Cataldo, E. Vascular ameloblastoma of periodontium. *Periodontics* 3:190, 1965.
8. Thoma, K. H. and Goldman, H. M. *Oral pathology*. Ed. 5. St. Louis, Mosby, 1960.
9. Lucas, R. B. *Pathology of tumours of the oral tissues*. Boston, Little, Brown, 1964 and London, Churchill, 1964.
10. Gorlin, R. J., Meskin, L. H. and Brodey, R. Odontogenic tumours in man and animals: pathologic classification and clinical behaviour — a review. *Ann. N. Y. Acad. Sci.* 108:722, 1963.

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Effect of the mechanism of muscle tonus on mandibular rest position

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Recent information about muscle behaviour indicates that there is no constant mandibular rest position. Instability of mandibular postural position observed in edentulous patients and the tendency toward a reduction of the rest vertical dimension after tooth loss suggest that variability in the mandibular rest position is a normal phenomenon. The clinical implications of this phenomenon are reflected by the need for interim dentures or therapeutic exercise before making final prosthetic registrations in edentulous patients.

Des études récentes sur la physiologie musculaire semblent indiquer que la position de repos de la mâchoire inférieure n'est pas constante. Il semble qu'il ne faille pas considérer comme anormale une certaine instabilité de la position de repos chez des patients édentés. Une perte de hauteur verticale consécutive à l'extraction des dents ne semble pas non plus pathologique. Parmi les conséquences cliniques de ce phénomène, il faut mentionner la nécessité de l'emploi de pièces de prothèse intérimaires ou d'exercice thérapeutique avant d'enregistrer les mensurations prothétiques finales chez des édentés.

Mandibular rest position has been a subject of intensive enquiries and some controversy during the last five decades. Essentially, this persistent interest in exploration of the principles of postural jaw position has been inspired by the hypothesis that "posture is the basis of movement and all movement begins and ends in posture."¹

Mandibular rest position has been defined as a "habitual postural position of the mandible when the patient is resting comfortably in the upright position and the condyles are in a neutral unstrained position in the glenoid fossae."² It is generally agreed that rest position is under some type of muscular regulation, but there has been no conformity of

P.E.C.—PARALLEL ELASTIC COMP.

C.E.—CONTRACTILE ELEMENT S.E.C.—SERIES ELASTIC COMP.

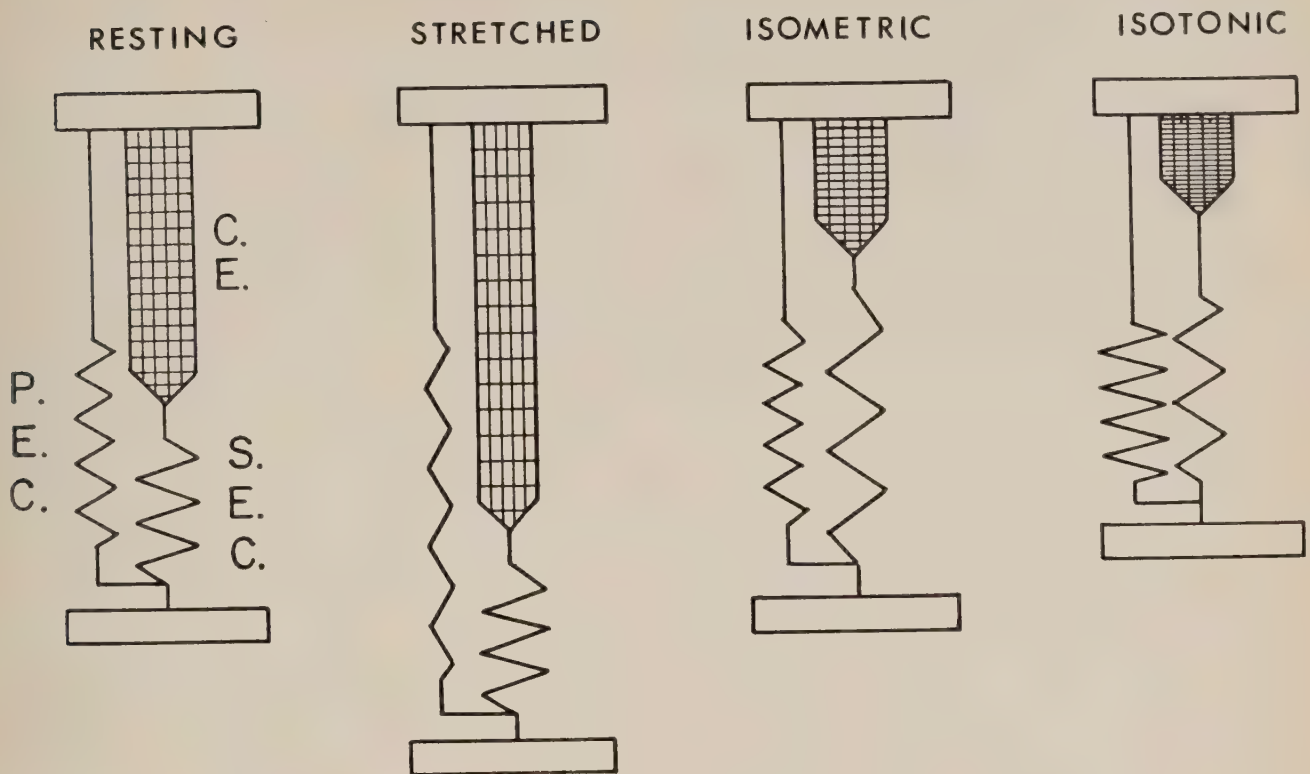


FIGURE 1 Model of muscle components.

views as to the nature of this control. The spectrum of expressed opinions extends from a concept of an absolute constancy of individual rest position^{3,4} to a theory of extreme variability of rest position⁵ within the "resting range of masticatory muscles"⁶ determined either by tonus,⁷ muscular reflexes,⁸ or "tonic contraction."⁹

Some of these views and the employed terminology are irreconcilable with the biomechanical principles of muscle behaviour. It is therefore desirable to re-appraise the whole concept of mandibular rest position and its clinical implications in terms compatible with the current theories of muscle mechanics.

THE CONCEPT OF 'ACTIVE TONUS'

The idea of 'active tonus,' based upon slight sustained contraction of muscle fibres, was introduced in the early part

of the nineteenth century.¹⁰ Since continuous partial contraction of muscle produces fatigue, the original concept of 'tonic contraction' was later modified, and a rotational activity among motor units was subsequently proposed.¹¹ This supposition worked its way into teaching so successfully "that physiological textbooks have treated it (and many still do) as if it were a demonstrated fact."¹²

Contrary to this widespread belief, electromyographic testing of thousands of normal postural human muscles indicates that there is no random activity of motor units in a resting muscle to afford an 'active tonus.'¹³ Certain small electrical potentials detected over relaxed muscles may be caused by 'tissue noise.' Similar phenomena can also be observed over non-muscular sites, such as the patella, which strongly suggests that they are not produced by the continuous firing of a few motor units in a muscle.¹⁴ Furthermore, electromyographic studies demonstrate that considerable passive move-

ments may be performed without releasing reflex activity in muscle itself.¹⁵ Even in active contraction, antagonist muscles may yield without being stimulated. For example, the stretching of muscle ends in a cineplastic amputee to about 150 per cent of rest length elicits no detectable electrical activity.¹² Therefore, the assumption that muscle stretch and the resulting stretch reflex are an adequate stimulus for maintenance of an active tonic condition seems untenable.¹⁶

THE CONCEPT OF 'PASSIVE TONUS'

Muscle may be viewed as a physical entity composed of three functionally, though not structurally, distinct elements: (1) a contractile element, (2) a series elastic component, and (3) a parallel elastic component (Figure 1).¹⁷ On stimulation, contractile element (CE) becomes activated and generates a contractile force. The resulting active shortening of the contractile element causes a passive elongation of the series elastic component

(SEC) which has characteristics of a stiff spring with low distensibility. Consequently, an internal force is produced and the resulting tensions are transmitted to the points of attachment of the muscle.

During isometric contraction, when both ends of the muscle are fixed and external shortening cannot occur, the developed tension is a function of (1) the shortening properties of the active contractile element, (2) extensibility of the series elastic component, and (3) duration of the active state of the contractile element. By contrast, during isotonic contraction, when a muscle is allowed to shorten after stimulation, the course of shortening depends less upon the properties of the series elastic component than upon the characteristics of the contractile element. The increment of tension in the series elastic component and shortening of the contractile element, both associated with an active state, greatly increase muscle stiffness (resistance to stretch).

Muscle at rest shows a considerable visco-elasticity and an extensibility which is similar to that of rubber. It can be stretched by relatively small force up

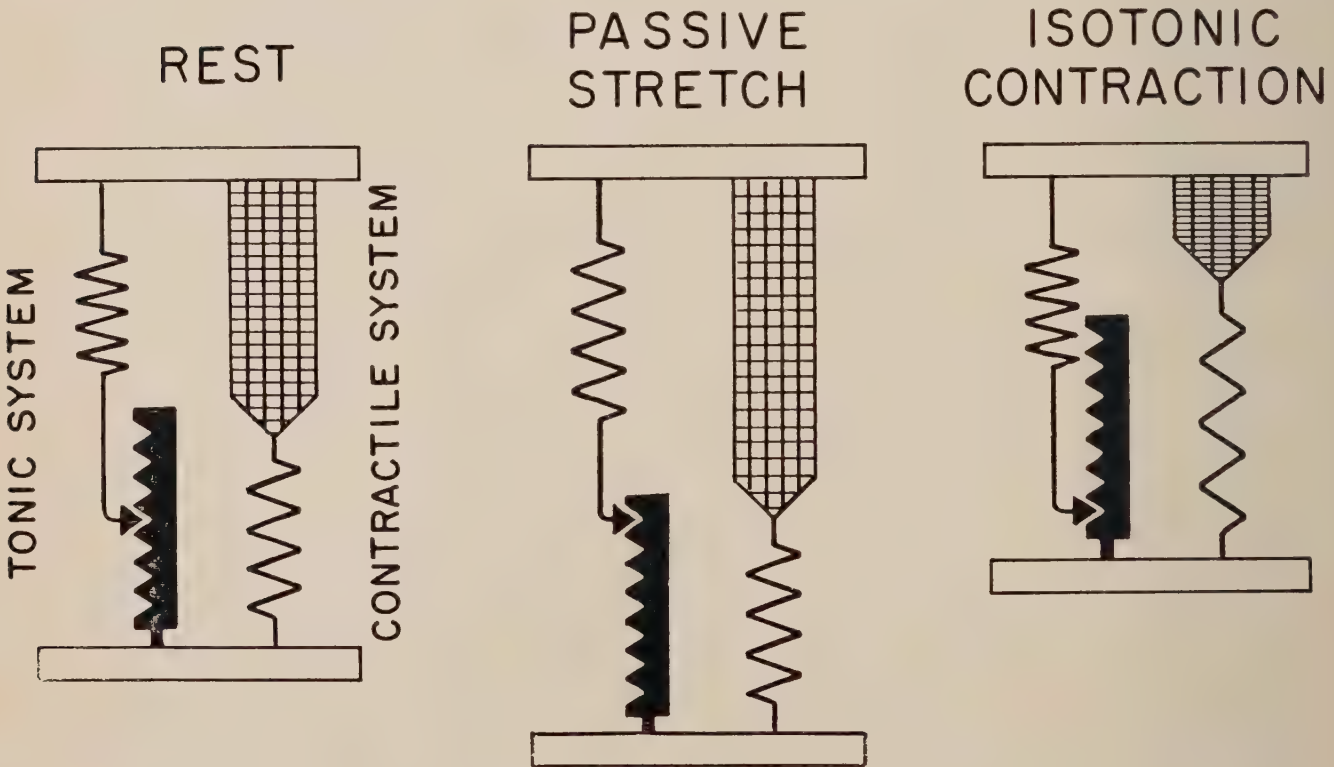


FIGURE 2 Model of muscle machine.

to its double equilibrium length without material plastic changes. Therefore, as tissue is stretched and muscle fibres yield and become extended, load is shifted to the third element — the parallel elastic component (PEC) — which is considerably less distensible. It has been suggested that in view of its great extensibility in the inactive state, the contractile element together with a coupled series elastic component does not contribute to the resting tensions of the muscle. The latter are controlled primarily by the parallel elastic component.

Alexander and Johnson¹⁸ recently proposed that the parallel elastic component should be viewed as a ratchet device for setting of equilibrium of muscle tension and length (Figure 2). They labelled this parallel system 'tonic' because it satisfied "the definition of being capable of altering the state of the muscle without dependence on the maintained release of energy by the contractile process."¹⁸ According to this scheme (Figure 2), muscle tonus is a function of (1) passive accommodation of muscle length, and (2) active contraction. Passive accommodation is produced by slippage of the ratchet in either direction in response to sustained physical force applied to the muscle. Active contraction, in addition to activating the contractile element, produces rapid resetting of parallel elastic component to the resting length and erases the plastic set established during passive equilibrium of tension.

PROPRIOCEPTIVE REGULATION OF POSTURE

Muscle tonus and the elasticity of connective tissues within which muscles reside are components of the complex self-regulating proprioceptive system which maintains static posture against the force of gravity. These two factors, plus the balancing of body parts on the osseous skeleton, constitute important non-neural elements of the proprioceptive mechanism. They provide partial neutralization of the force of gravity with a minimum expenditure of energy. Proprioceptive impulses — the neural component of this system — furnish cybernetic regulation

of muscle position by means of altering the excitatory and inhibitory states of the motor centres at various levels. These impulses do not, however, elicit simple reflex discharge of the motor neurons to the stretched muscle.¹²

MANDIBULAR REST POSITION

Various assumptions embodied in the proposed models of muscle mechanics and body proprioception have been tested experimentally. They apparently reproduce the behaviour of living muscular tissue remarkably well. These biomechanical principles appear to be irreconcilable with the constancy concept^{3,4} of mandibular postural position and seemingly support speculation that there is no definite physiological rest position.

Posture is determined primarily by muscle tonus. Tonus may constitute a variable time-dependent mechanical property which represents a balance between the opposing effects of (1) muscle elongation produced by constant creep and stress relaxation, and (2) muscle shortening produced by repetitive contractions.¹⁹ Instability of mandibular postural position observed in edentulous patients²⁰ and the reported tendency toward a reduction of the rest vertical dimension after the loss of natural teeth^{21,22} may reflect the adaptive capacity of the tonic system. It can be postulated that loss of occlusal stops and the resulting mandibular overclosure produce resetting of the tonic ratchet mechanism and alteration of the resting muscle length as an adjustment to the newly acquired habitual muscular configuration.

It is noteworthy that plastic set of the tonic system in edentulous patients can be 'erased' by interim dentures²³ or by a program of therapeutic exercise.²⁴ These procedures can apparently restore the resting length of parallel elastic component and reduce muscle stiffness before final prosthetic registrations are made.

CONCLUSION

I wish to suggest that the variability

of mandibular rest position or 'inconstancy concept' is compatible with the principles of biological homeostasis. In a sense, posture is stable because it is modifiable, since slight instability may be the necessary condition for true stability of the organism.²⁵

SUMMARY

The concept of mandibular rest position is reassessed in terms of current theories of muscle mechanics.

Theories of 'active tonus' and 'passive tonus' are outlined and the assumptions incorporated in the proposed biomechanical model of muscle behaviour are defined.

The concept of variable mandibular postural position (inconstancy concept) is introduced. The clinical implications derived from this concept are reflected by the need for interim dentures or therapeutic exercise before making final prosthetic registrations in edentulous patients.

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- Sherrington, (Sir) C. S. The integrative action of the nervous system. New Haven, Yale University Press, 1920.
- The Academy of Denture Prosthetics. Glossary of prosthodontic terms. Ed. 2. J. Pros. Den. 10: Suppl. 1960.
- Niswonger, M. E. The rest position of the mandible and the centric relation. J.A.D.A. 21:1572, 1934.
- Thompson, J. R. Rest position of the mandible and its significance to dental science. J.A.D.A. 33:151, 1946.
- Atwood, D. A. Cephalometric study of the clinical rest position of the mandible. Part III: clinical factors related to variability of the clinical rest position following the removal of occlusal contacts. J. Pros. Den. 8:698, 1958.
- Garnick, J. J. and Ramfjord, S. P. Rest position. An electromyographic and clinical investigation. J. Pros. Den. 12:895, 1962.
- Sicher, Harry. Oral anatomy. Ed. 3. St. Louis, Mosby, 1960.
- Moyers, R. E. Some physiologic considerations of centric and other jaw relations. J. Pros. Den. 6:183, 1956.
- Atwood, D. A. Review of the fundamentals on rest position and vertical dimension. Internat. D. J. 9:6, 1959.
- Müller, J. Elements of physiology. Translated from the German, with notes by William Baly. London, Taylor and Walton, 1837-8.
- Forbes, A. The interpretation of spinal reflexes in terms of present knowledge of nerve conduction. Physiol. Rev. 2:361, 1922.
- Ralston, H. J. and Libet, B. The question of tonus in skeletal muscle. Am. J. Phys. Med. 32:85, 1953.
- Basmajian, J. V. Electromyography of postural muscles. In F. G. Evans, ed. Biomechanical studies of the musculo-skeletal system. Springfield, Charles C. Thomas, 1961.
- Nightingale, A. Electrical noise from polarisation 'Cells' and from human tissues. Nature 181:192, 1958.
- Clemmensen, S. Some studies on muscle tone. Proc. Roy. Soc. Med. 44:637, 1951.
- Fulton, J. F. Muscular contraction and the reflex control of movement. Baltimore, Williams and Wilkins, 1926.
- Hill, A. V. Mechanics of active muscle. Proc. Roy. Soc. London, ser. B 141:104, 1953.
- Alexander, R. S. and Johnson, P. D., Jr. Muscle stretch and theories of contraction. Am. J. Physiol. 208:412, 1965.
- Remington, J. W. Introduction to muscle mechanics, with a glossary of terms. Fed. Proc. 21:954, 1962.
- Olsen, E. S. Radiographic study of variations in the physiological rest position of the mandible in seventy edentulous individuals. J. D. Res. 30:517, 1951. Abstract.
- Atwood, D. A. Cephalometric study of the clinical rest position of the mandible. Part I. The variability of the clinical rest position following the removal of occlusal contacts. J. Pros. Den. 6:504, 1956.
- Tallgren, Antje. Changes in adult face height due to ageing, wear and loss of teeth and prosthetic treatment. Acta Odont. Scandinavica 15:1, suppl. 24, 1957.
- Jacobs, R. M. Accommodation of perioral tonus following insertion of full dentures. In press.
- Idem. Electrodynamographic evaluation of the effects of preprosthetic muscle exercise upon perioral tonus. In press.
- Cannon, W. B. The wisdom of the body. Revised Ed. 2. New York, Norton, 1963.

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Canada's Trading Position Declines • Canada's position in the ranking of the world's leading exporters has slipped. A decade ago this country occupied fifth place, but in 1965 dropped to seventh behind the USA, Western Germany, the United Kingdom, France, Japan and the USSR. — Bank of Montreal Business Review, June 29, 1966.

Limitations of clotting and bleeding time tests for screening haemorrhagic disorders

O. N. Lucas,* DDS, PhD, Edmonton, Alberta

A careful medical history will provide more information about bleeding tendencies of patients than routine pre-operative bleeding and clotting time tests. Further investigation is mandatory when the medical history reveals or even suggests a bleeding tendency. A battery of comprehensive differential diagnostic tests is available for this purpose.

Une bonne histoire médicale renseigne davantage au sujet des tendances hémorragiques du patient que des tests de temps de saignement et de temps de coagulation préopératoires. Une enquête plus approfondie s'impose lorsque l'histoire médicale révèle ou suggère des tendances hémorragiques. Le praticien a à sa disposition toute une série de tests permettant d'établir un diagnostic différentiel.

The dental and medical literature contains many reports on the use of clotting and bleeding time tests as a measure of the efficiency of the haemostatic mechanism. In many institutions these tests are performed routinely as preparatory laboratory investigative procedures. Unfortunately, they are unreliable for the selection of patients with minor blood defects. Both tests have many limitations and should never be used as the only tests to evaluate alterations in haemostasis. The purpose of this paper is to explain the physiological principles on which these

two laboratory tests are based and to define their limitations.

CLOTTING TIME

The first laboratory test to measure coagulability of the blood was probably developed in 1878.¹ In 1913 Lee and White² devised a clinical test which has been used widely since. This measures the time that blood takes to pass from a liquid state in the blood vessel to a solid or gel

state in the test tube.³ However, no matter what technique is used, many factors can influence the final results of the test. Unless they are understood and considered in the findings, these factors make the procedure unreliable and worthless. They are thoroughly discussed by Tocantins and Holburn⁴ and by Jaques.⁵ For instance, these authors demonstrated the influence of the tissue thromboplastin that enters the needle when the blood sample is being taken. Jaques indicated that when blood is contaminated in this manner, a clotting time of five minutes can be recorded in haemophiliacs whose normal clotting time is more than an hour.

Even the introduction of siliconized test tubes and rigid laboratory standardization have failed to make this test reliable for the detection of haemorrhagic disorders due to deficiencies in coagulation.^{3,6} Stefanini and Dameshek⁷ consider clotting time primarily as a test of orientation. Quick⁸ regards clotting time as probably the least important laboratory test to study blood coagulation.

Biggs and Macfarlane,⁹ discussing bleeding tendencies of haemophiliacs, concede that a prolonged clotting time 'probably' indicates a severe defect. But they emphasize that a short clotting time does not necessarily mean that the patient is mildly affected.

Ratnoff¹⁰ has made very clear the fatal consequence that can ensue when relying only on clotting time as a measure of the haemostatic potential. He comments on a patient with mild haemophilia and normal clotting time who actually died from ensuing haemorrhage following surgery. The mild history of bleeding in this patient was minimized by his physician in view of his normal clotting time.

BLEEDING TIME

This test measures the time taken by a skin cut of uniform depth and length to stop bleeding. Bleeding time determination is affected by quality and quantity of platelets as well as the integrity of the vascular wall. This is not a constant phenomenon, however. For example, a

patient with a very low platelet count may have a normal or near-normal bleeding time and no clinical evidence of a haemorrhagic tendency. On the other hand, thrombocytopenia and purpura haemorrhagica with normal platelet count can show both a normal and an extremely prolonged bleeding time when recorded simultaneously but at different sites of the same organ.¹¹ Lucas et al¹² have treated some thrombocytopenic patients with a very low platelet count who nevertheless showed normal bleeding time and normal clotting time in glass.

Others have tried to develop more reliable methods of measuring bleeding time.¹³⁻¹⁵ One of these is the estimation of mean bleeding time. This consists of five or 10 determinations and uses the mean as a final result.¹⁶ Multiple bleeding time determinations are very troublesome, however, and can cause severe haemorrhage.

DISCUSSION

The routine performance of pre-operative clotting and bleeding time tests may reflect a lack of knowledge regarding the underlying physiological principle involved. Neither test is justified on the basis of physiological reasoning. Both may, in fact, lead to a false and dangerous conclusion. One must therefore question the expenditure of time and money in return for such ambiguous results. On the other hand, abnormal bleeding and clotting time may cause unnecessary alarm to the patient and surgeon.

Diamond and Porter¹⁷ have identified three distinct groups of 'bleeders.' Group 1 are patients who have abnormal pre-operative clotting or bleeding time but no demonstrable coagulation defect. Group 2 are patients who have no pre-operative haemostatic abnormality but experience severe postoperative bleeding episodes. Group 3 are patients with classic haemophilia or Christmas Disease who exhibit normal clotting and bleeding time. Diamond and Porter¹⁷ conclude that pre-operative clotting and bleeding time tests can produce false positive reactions. A normal result, moreover, in no way as-

asures a normal bleeding and clotting status in the patient. These authors therefore plead for the abandonment of routine pre-operative clotting and bleeding time tests.

Several other workers point out the limitations of these two tests. Lucas¹⁸ condemns the routine bleeding and clotting time tests as a reliable guide to evaluate haemostasis. Fletcher¹⁹ stresses the medico-legal inadequacy of clotting and bleeding time tests which many physicians still regard as protection against a claim of negligence in the event that a patient experiences postoperative haemorrhage. Finally, Sprague²⁰ considers the finger stick bleeding time and clotting time done by the capillary tube method essentially without value and more apt to mask a significant defect rather than reveal it.

Although the limitations of clotting and bleeding times have been substantiated by well-known haematologists,^{3,8,11,17,21} some authors continue to advocate the performance of these pre-operative tests.²²⁻²⁴ In my opinion there is no justification for using these tests as a means of screening out patients with a haemorrhagic diathesis.

At present it is well accepted that a careful and critical medical history and thorough examination are far more important in the detection of haemorrhagic disorders than are clotting and bleeding times.^{20,25} This is especially true for patients with a serious defect of the haemostatic mechanism, since such patients may have evidenced bleeding in the past. The recording of a comprehensive case history is mandatory for the patient who may not have experienced any bleeding but whose family has a history of bleeding.

When the personal and family history as well as the physical examination of the patient suggest the possibility of a haemorrhagic disorder, special pre-operative tests should be performed to evaluate the different factors that participate in haemostasis.²⁶

One of these is the thromboplastin generation test,⁹ a very sensitive device for detecting abnormalities of any or all of the plasma components involved in the first phase of coagulation (intrinsic

thromboplastin formation). Since the preparation of reagents for this test takes a long time and the test itself requires special skill, the thromboplastin generation test is often replaced by the prothrombin consumption test⁸ even though the latter is less reliable for detecting minor defects in the formation of thromboplastin.

Quick's one stage prothrombin time⁸ measures the second phase of coagulation (prothrombin complex activity).

Determination of fibrinogen concentration will indicate any defect in the third phase of coagulation. This is only performed when the other coagulation tests have given normal values.

A tourniquet test can indicate abnormalities in the vascular factor.

A platelet count will indicate haemorrhagic problems due to thrombocytopenia.

SUMMARY

Clotting and bleeding time are not reliable pre-operative laboratory tests for measuring the efficiency of the haemostatic mechanism. A careful medical history will provide more information about bleeding tendencies of patients than routine bleeding and clotting times. Further investigation is mandatory when the medical history reveals or even suggests a bleeding tendency. A battery of comprehensive differential diagnostic tests is available for this purpose.

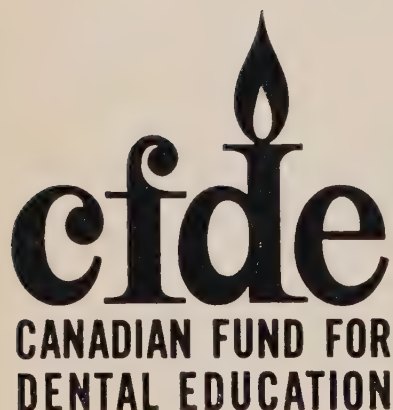
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1. Vierordt, K. H. Die Gerinnungszeit des Blutes in gesunden und kranken Zustände (German). Arch. Heilkunde 19:193, 1878.
2. Lee, R. I. and White, P. D. A clinical study of the coagulation time of the blood. Amer. J. Med. Sc.; N.S. 145:495, 1913.
3. Quick, A. J., Honorato, R. and Stefanini, M. The value and the limitations of the coagulation time in the study of the hemorrhagic diseases. Blood 3:1120, 1948.
4. Tocantins, L. M. and Holburn, R. R. Introductory exercises. Chapter 2. Blood coagulation, hemorrhage and thrombosis; methods of study, Tocantins, L. M. and Kazal, L.A., ed. Ed. 2. New York, Grunne & Stratton, 1964.
5. Jaques, L. B. Determination of the clotting time of whole blood—The coagulation of blood: methods of study, Tocantins, L. M., ed. Prepared with the help and under the sponsorship of the Panel on Blood Coagulation of the Committee on Medicine and Surgery of the National Academy of Sciences, Natl. Research Council N.Y. New York, Grunne & Stratton, 1955.
6. Jaques, L. B., Fidler, E., Feldsted, E. T. and

- Macdonald, A. G. Silicones and blood coagulation. *Canad. M.A.J.* 55:26, 1946.
7. Stefanini, M. and Dameshek, W. The hemorrhagic disorders. A clinical and therapeutic approach. New York, Grunne & Stratton, 1955.
 8. Quick, A. J. The coagulation mechanism, the application to hemophilia. Read before the Illinois Association of Blood Banks, Chicago, Illinois, May 22, 1959. In *Bulletin of the American Association of Blood Banks*.
 9. Biggs, R. P. and Macfarlane, R. G. Human blood coagulation and its disorders. Ed. 3. Oxford, Blackwell Scientific Publications, 1962.
 10. Ratnoff, O. D. The therapy of hereditary disorders of blood coagulation. *Arch. Intern. Med.* 112:92, 1963.
 11. Roskam, J. Arrest of bleeding: physiology, pharmacology, pathology. Springfield, Charles C. Thomas, 1954.
 12. Lucas, O. N., Young, K., Finkelman, A. and Tocantins, L. M. Oral surgery in thrombocytopenic patients. *Oral Surg., Oral Med. & Oral Path.* 17:572, 1964.
 13. Ivy, A. C., Shapiro, P. F. and Melnick, P. The bleeding tendency in jaundice. *Surg. Gynec. Obst.* 60:781, 1935.
 14. Ivy, A. C., Nelson, D. and Bucher, G. The standardization of certain factors in the cutaneous 'venostatis' bleeding time technique. *J. Lab. Clin. Med.* 26:1812, 1941.
 15. Duesberg, J. P. Le temps de saignement humain selon la technique de Dishock et Jongkees. *Revue belge Pathol. et Med. Exp.* 18:333, 1947.
 16. Tocantins, L. M. The bleeding time. *Amer. J. Clin. Path.* 6:160, 1936.
 17. Diamond, L. K. and Porter, F. S. The inadequacies of routine bleeding and clotting times. *New England J. Med.* 259:1025, 1958.
 18. Lucas, O. N. Limitations of the routine clotting and bleeding time (Spanish). *Rev. Assoc. Odont. Argentina* 50:355, 1962.
 19. Fletcher, R. The routine bleeding and clotting time tests: their medicolegal status. *Laryn.* 68:1087, 1958.
 20. Sprague, C. C. A time for reevaluation of hemostatic agents. *AMA Arch. Intern. Med.* 107:4, 1961.
 21. Roskam, Jacques. L'hémostase spontanée, physiologie, pharmacodynamie clinique. Paris, Masson, 1951.
 22. Okubo, J. K. Bleeding and coagulation time determination: a simple method. *J. Michigan D. A.* 43:270, 1961.
 23. Berman, C. L. et al. Comparison of intraoral and fingertip bleeding time. A preliminary report. *New York State D. J.* 27:21, 1961.
 24. Peltier, J. R. Laboratory tests for dentists. *Oral Surg., Oral Med. & Oral Path.* 12:1324, 1959.
 25. Diggs, L. W. Diagnosis of hemorrhagic diseases—evaluation of procedures. *Calif. Med.* 87:361, 1957, part I; 88:16, 1958, part II.
 26. Lucas, O. N. Laboratory techniques for the evaluation of the mechanisms of coagulation (Spanish). *Rev. Assoc. Odont. Argentina* 50:102, 1962.

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Memo to Dental Society Executives



Do you know that Canadian and American delegates to the mid-September meeting of the Canadian Section, American Dental Trade Association, contributed \$144.03 in support of dental education in Canada? Canadians who did not wear their lapel badge or the distinctive maple leaf pin provided by the host organization had to pay small fines. At the concluding banquet the attending dealers and manufacturers contributed additional one, two, five and 10 dollar bills. A cheque for the total proceeds was mailed to CFDE, 234 St. George Street, Toronto 5, Ontario. CFDE is also appealing to the dentists for support. There should be a good balance between the giving from the profession and the dental supply industry. So, why not try the dental dealers' idea at your next dental society meeting?

Etude de la perméabilité de la carie initiale de l'émail

Permeability of incipient carious enamel lesions

Sur une surface usée et polie, recouverte d'un vernis transparent, on peut observer microscopiquement en lumière réfléchie la pénétration des solutions colorantes dans les lésions de caries initiales de l'émail. On a mesuré le progrès de la pénétration du bleu de toluidine dans les caries initiales. On a ensuite comparé la perméabilité des caries initiales avant et après qu'elles aient été traitées avec les solutions suivantes: (1) la solution redurcissante de Koulourides, Cueto et Pigman; (2) des solutions saturées de phosphate de calcium dibasique dans l'acide lactique; (3) des solutions saturées de tissus dentaires dans l'acide lactique; (4) la solution tampon de lactate. Les solutions de phosphate de calcium et de tissus dentaires peuvent ralentir la pénétration du colorant dans les caries initiales. Dans certains cas, des lésions qui étaient originellement facilement perméables sont devenues imperméables. La solution tampon de lactate à un pH acide peut pénétrer dans les lésions qui sont imperméables à un colorant neutre.

The permeability of incipient carious enamel lesions can best be observed by examining under reflected light microscopy the penetration of staining solutions in ground, polished enamel sections covered with a transparent varnish. The author measured the progress of penetration of toluidine blue in such lesions. He compares the permeability of enamel caries before and after treatment with a hardening solution of Koulourides, Cueto and Pigman; with saturated solutions of dibasic calcium phosphate in lactic acid; with saturated extracts of dental tissue in lactic acid; and with a lactate buffer solution. The calcium phosphate solutions and the extracts of dental tissue retarded penetration of early lesions by the stain. Some highly pervious lesions became relatively impervious. Lactate buffer solution with an acid pH was able to penetrate lesions that were impermeable to a neutral stain.

La carie débute sur la surface de l'émail sous la forme d'une tache blanche ou pigmentée. A mesure qu'elle pénètre dans l'émail, la lésion prend la forme d'un cône et s'approfondit jusqu'à ce qu'elle atteigne la dentine. A ce stade, il n'y a

pas encore formation d'une cavité proprement dite. Pour pénétrer au fond de la lésion l'agent décalcifiant doit donc traverser le tissu dentaire altéré. Les minéraux qui sont enlevés de l'émail sain sous-jacent à la lésion doivent eux aussi tra-

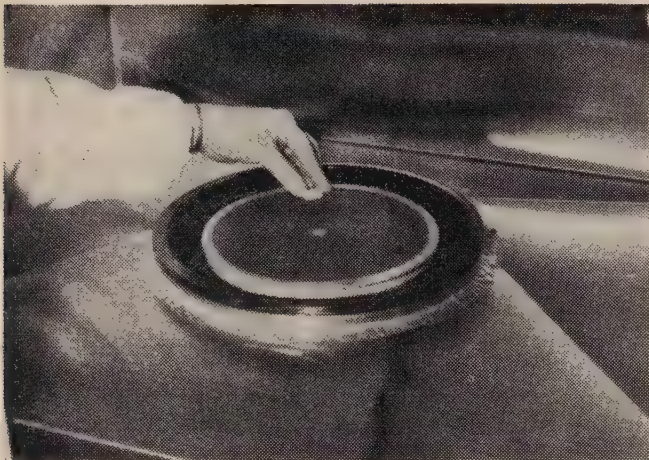


FIGURE 1 En tenant solidement la dent sur le disque horizontal en mouvement d'un appareil minéralogique et métallurgique, nous parvenons facilement à l'user à l'endroit désiré.

verser le tissu dentaire altéré avant d'être rejetés à l'extérieur.

Mézi¹ a déjà montré qu'environ un tiers des lésions initiales de l'émail demeurent imperméables à des solutions de colorant ou de phosphate de calcium, même après y avoir été submergées pendant des périodes variant de deux à quatre heures. Il n'y a donc aucune pénétration de la solution à l'intérieur de la lésion.

Cependant, la formation d'une lésion suppose que l'agent décalcifiant puisse pénétrer à l'intérieur de celle-ci et que les minéraux qui sont dissous puissent eux aussi traverser la lésion pour en sortir. Une lésion ne peut donc acquérir ce caractère d'imperméabilité qu'après avoir été formée. Cette imperméabilité ne serait donc pas permanente.

Cette étude a pour but:

1. D'observer le progrès de la pénétration de solutions dans des lésions initiales de l'émail, pour en déterminer de façon approximative la rapidité;
2. De tenter expérimentalement de conférer une certaine imperméabilité à une lésion perméable;
3. De tenter expérimentalement de rendre perméable une lésion qui est déjà imperméable.

MATÉRIAUX ET TECHNIQUES

On a fait toutes ces observations sur des dents humaines extraites, fixées dans le formol à 8 pour cent puis lavées à l'eau courante durant 24 heures.

On a employé des dents temporaires aussi bien que des dents permanentes. Toutes étaient atteintes de caries initiales blanches ou pigmentées, sans perte de substance. Toute perte de substance évidente au microscope stéréoscopique (grossissement 10X) entraînait le rejet de la dent. La plupart des caries étaient proximales, mais il y avait aussi quelques caries des surfaces buccales et occlusales.

Inspirés par la méthode de Manly, Emerson et Kapur² pour observer la pénétration de solutions dans des coupes microscopiques, nous avons élaboré des techniques spécialement adaptées à nos besoins. Nous avons usé les dents grâce à un appareil minéralogique et métallurgique 'Buehler Polisher' muni d'un disque horizontal de 20 cm de diamètre et tournant à une vitesse de 550 à 1150 tours par minute (Figure 1).

On garde la dent mouillée de façon à ce qu'elle ne se déshydrate pas sous l'effet de la chaleur que dégage le meulage. La surface de la dent est ainsi polie et la coupe passe longitudinalement par le centre de la lésion de façon plus ou moins parallèle aux bâtonnets d'émail de cet endroit. La lésion devient alors bien visible à l'œil nu et l'on peut aussi l'observer au microscope en lumière réfléchie (Figure 2).

La surface de la dent ainsi préparée est asséchée au papier buvard pendant 10 minutes. On emploie ensuite un vernis (Glossy Clear Smartee with nylon; Cameo Inc., Toledo, Ohio) que l'on applique avec précision au pinceau, sous le microscope stéréoscopique. Ce vernis a pour but d'empêcher la pénétration du colorant à travers la surface usée et polie à la meule.

La surface naturelle de la dent et de la lésion n'est pas recouverte de façon à permettre la pénétration du colorant et des solutions à étudier. Le vernis sèche en deux à trois minutes, après quoi on peut immédiatement immerger la dent dans la solution dont on veut étudier la pénétration. Le vernis ne nous empêche pas d'observer la pénétration du colorant à l'œil nu ou au microscope en lumière réfléchie (Figure 3).

Toutes les dents qui ont servi au présent travail ont été préparées selon la



FIGURE 2 Photomicrographie montrant la surface usée et polie où l'on peut étudier la lésion en l'observant au microscope en lumière réfléchie. Ici, on voit la pénétration partielle du bleu de toluidine à 1 pour cent, après une immersion de trois heures. Objectif Ultropak C. 5X.



FIGURE 3 Photomacrographie montrant qu'à travers le vernis, on peut observer le degré de pénétration. La carie proximale située entre le tiers occlusal et le tiers moyen montre un point de pénétration en surface de la lésion, alors que la carie située au collet est complètement pénétrée par le bleu de toluidine à 1 pour cent après une immersion de trois heures. Exacta F 90.

technique que nous venons de décrire. Il a fallu sacrifier un bon nombre de dents avant de parvenir à standardiser la technique et à trouver un vernis convenable.

D'autres dents ont dû être rejetées à cause d'accidents techniques divers: mauvaise incidence de la coupe, dommages à la surface, faillite du vernis.

Les résultats ne tiennent compte que des observations faites sur des dents faisant l'objet d'une technique exécutée à la perfection. Bien entendu, nous n'avons employé aucune lésion imperméable dans les six premières expériences, et aucune lésion perméable dans la septième.

RÉSULTATS

1. Etude du progrès de la pénétration d'une solution aqueuse de bleu de toluidine à 1 pour cent dans les caries initiales.

— Trente-sept dents comportant 40 lésions initiales blanches ont servi à cette première partie de notre travail. Les dents sont immergées dans la solution de colorant durant trois heures. Toutes les 30 minutes, elles sont examinées au microscope stéréoscopique (grossissement 10X) et le degré de pénétration du colorant est noté.

La lésion se colore graduellement. Les parties superficielles d'abord (Figure 3), les parties plus profondes ensuite. Enfin, la totalité de la lésion. Dans certains cas, la coloration est d'abord pâle, mais devient plus foncée avec le temps. La vitesse de pénétration du colorant varie indépendamment du volume de la lésion. Certaines, grandes et profondes, peuvent se colorer complètement en 30 minutes, alors que d'autres, plus petites ou plus superficielles, peuvent prendre trois heures avant de se colorer.

Au tableau 1, on indique le temps nécessaire à la coloration complète des lésions,

phénomène qui prend place dans la plupart des cas en une heure ou deux. Les lésions qui n'étaient pas complètement colorées au bout de trois heures, le sont toutes devenues après une immersion de 16 à 40 heures dans le colorant.

2. *Comparaison de la perméabilité des caries initiales avant et après le traitement par la solution redurcissante de Koulourides, Cueto et Pigman.*—Pour cette épreuve, nous avons choisi des lésions blanches initiales de l'émail, toutes perméables. On peut déterminer cette perméabilité des lésions en immergeant les dents dans une solution aqueuse d'éosine (0.02 Gm/ml). La vitesse de pénétration est observée toutes les 30 minutes pendant une période de trois heures. Après quoi, les dents sont lavées à l'eau courante pendant quatre heures, pour les débarrasser de l'excès d'éosine.

Ensuite, les dents sont exposées à la solution que recommandent Koulourides, Cueto et Pigman³ pour redurcir les surfaces artificiellement ramollies sur les dents humaines.

Cette solution se prépare en dissolvant dans de l'acide chlorhydrique une quantité de phosphate de calcium dibasique correspondant à 50 millimoles de calcium. La concentration molaire de l'acide chlorhydrique doit être le double de la concentration du calcium. Le volume est ajusté à un litre.

De cette solution, on prend un aliquot correspondant à 1.25 millimole de calcium; on porte le volume à 420 ml avec de l'eau distillée; on ajoute suffisamment d'hydroxyde de potassium (0.05 M) pour porter le pH à 7 ou 7.3. Enfin, le volume

final est ajusté à 500 ml. A ce pH, il y a déjà formation d'un léger précipité dans la solution.

Les dents sont immergées dans la solution fraîche à raison de 10 dents pour 500 ml. Le tout est étuvé à 37°C pour une période de 16 heures. A ce moment, il y a formation d'un abondant précipité dans la solution: le pH se trouve entre 6.0 et 5.45.

Les dents sont d'abord rincées à l'eau courante et placées dans le bleu de toluïdine dont on observe la pénétration toutes les 30 minutes. Le bleu couvre le rouge de l'éosine et la différence de pénétration est facilement visible.

Quarante dents portant chacune une seule lésion ont été traitées de cette façon. Les résultats sont résumés dans le tableau 2. Les lésions y sont classées en quatre groupes, selon la rapidité de pénétration du bleu de toluïdine.

Dans le groupe numéro 1, les lésions sont demeurées, après traitement à la solution redurcissante, aussi perméables au bleu de toluïdine qu'elles l'avaient été à l'éosine. S'il y avait dans quelques cas de petites différences au début, la différence entre le temps de pénétration complète de l'un et de l'autre colorant ne dépassait pas 30 minutes. D'une lésion à l'autre, le temps de pénétration pouvait varier entre 30 et 180 minutes.

Dans le groupe numéro 2, la pénétration du bleu de toluïdine était plus rapide que ne l'avait été celle de l'éosine; par exemple, pénétration complète en 90 minutes avant, et en 30 minutes après le traitement, ou en deux heures avant et une heure après.

TABLEAU 1 Pénétration du bleu de toluïdine dans les caries initiales.

Temps	Nombre de lésions
Pénétration complète en 30 minutes	6
Pénétration complète en 60 minutes	9
Pénétration complète en 90 minutes	12
Pénétration complète en 120 minutes	7
Pénétration complète en 180 minutes	2
Pénétration partielle au bout de 180 minutes	4
Total	40

TABLEAU 2 Comparaison de la pénétration du colorant avant et après le traitement par la solution redurcissante.

Résultat	Nombre de lésions
1. La perméabilité est inchangée	11
2. Pénétration plus rapide après le traitement	7
3. Pénétration plus lente après le traitement	20
4. Avant le traitement, pénétration complète; après le traitement, aucune pénétration	2
Total	40

TABLEAU 3 Détails du 3e groupe du tableau 2.

Avant	Après	Nombre de lésions
Pénétration complète en 30 minutes	Pénétration partielle en 180 minutes	6
	Pénétration complète en 180 minutes	3
	Pénétration complète en 120 minutes	4
	Pénétration complète en 90 minutes	1
	Pénétration complète en 60 minutes	3
Pénétration complète en 60 minutes	Pénétration partielle en 180 minutes	2
	Pénétration complète en 90 minutes	1

Dans le groupe numéro 3, la pénétration est ralentie par la solution redurcissante et les détails sont donnés dans le tableau 3.

Dans le groupe 4, on a placé les lésions qui avaient été pénétrées par l'éosine en 30 et 60 minutes, mais qui après traitement à la solution redurcissante, sont demeurées imperméables au bleu de toluïdine, même après trois heures d'immersion.

3. *Comparaison de la perméabilité des caries initiales avant et après traitement par une solution saturée de phosphate de calcium dibasique dans l'acide lactique.* — Ces dents ont été exposées à l'éosine, mises dans une solution de phosphate pour trois jours, rincées à l'eau distillée et exposées au bleu de toluïdine.

La solution de phosphate de calcium est préparée à partir d'une solution 0.2N d'acide lactique dont le pH est ajusté à 6.0 au moyen d'une solution 0.2N de NaOH. L'acide lactique est ensuite saturé de (CaH PO₄) 2H₂O à la température de la pièce, le tout étant agité sans arrêt pen-

dant 72 heures dans un b cher ferm  d'une toile de 'parafilm.'

Les dents sont immerg es dans deux r cipients   raison de 10 ou 11 dents par 500 ml dans une solution dont le pH initial est de 6.20. Apr s trois jours, le pH s'est  lev    6.5 et 6.4 pour chacun des groupes.

Vingt et une dents comportant 24 l sions ont  t  trait es de cette fa on. Les r sultats sont r sum s dans les tableaux 4 et 5, suivant les m mes crit res qui ont servi dans l'exp rience pr c dente. Cette fois-ci, aucune l sion n'est devenue imperm able, et une seule a vu sa perm abilit  s'augmenter. Ayant mis 150 minutes   se colorer avant le traitement, elle a pu le faire en 30 minutes apr s.

4. *Comparaison de la perm abilit  des caries initiales avant et apr s traitement par plusieurs solutions satur es de phosphate de calcium de pH divers.* — Dans ce groupe d' preuves, nous avons utilis  la m me solution qui avait servi dans le groupe num ro 3. Elle a  t  pr par e de la m me fa on, mais les dosages ont  t  modifi s de fa on   obtenir un pH initial variant de 0.2   0.8.

Les dents sur lesquelles on avait d'abord  tudi  la p n tration de l' osine ont  t  immerg es   raison de 12 dents pour 550 ml de solution satur e de phosphate de calcium dibasique dans l'acide lactique,   temp rature de la pi ce.

Le pH de la solution est ajust  successivement   6.72 pour 24 heures, 7.0 pour 24 heures, 6.58 pour 24 heures, 7.21 pour 24 heures, 6.20 pour 24 heures, 7.15 pour 24 heures.

L'exp rience se termine par l'observation de la p n tration du bleu de tolu i-

TABLEAU 4 Comparaison de la p n tration du colorant avant et apr s le traitement par une solution satur e de phosphate de calcium dibasique dans l'acide lactique.

R�sultats	Nombre de l�sions
1 La perm�abilit� est inchang�e	11
2. P�n�tration plus rapide apr�s le traitement	1
3. P�n�tration plus lente apr�s le traitement	12
Total	24

TABLEAU 5 Détails du 3e groupe du tableau 4.

Avant	Après	Nombre de lésions
Pénétration complète en 30 minutes	Pénétration partielle en 180 minutes	1
	Pénétration complète en 180 minutes	1
	Pénétration complète en 150 minutes	1
	Pénétration complète en 120 minutes	2
	Pénétration complète en 90 minutes	2
Pénétration complète en 60 minutes	Pénétration partielle en 180 minutes	1
Pénétration complète en 90 minutes	Pénétration complète en 180 minutes	1
Pénétration complète en 120 minutes	Pénétration partielle en 180 minutes	1
Pénétration complète en 150 minutes	Pénétration partielle en 180 minutes	2

TABLEAU 6 Comparaison de la perméabilité des caries initiales avant et après traitement par plusieurs solutions saturées de phosphate de calcium de pH divers.

Résultat	Nombre de lésions
1. La perméabilité est inchangée	10
2. Pénétration plus rapide après le traitement	2
3. Pénétration plus lente après le traitement	25
4. Avant le traitement, pénétration complète; après le traitement, aucune pénétration	2
Total	39

TABLEAU 7 Détails du 3e groupe du tableau 6.

Avant	Après	Nombre de lésions
Pénétration complète en 30 minutes	Pénétration partielle en 180 minutes	4
	Pénétration complète en 180 minutes	0
	Pénétration complète en 150 minutes	1
	Pénétration complète en 120 minutes	1
	Pénétration complète en 90 minutes	5
	Pénétration complète en 60 minutes	2
Pénétration complète en 60 minutes	Pénétration partielle en 180 minutes	2
	Pénétration complète en 180 minutes	1
	Pénétration complète en 90 minutes	1
Pénétration complète en 90 minutes	Pénétration partielle en 180 minutes	2
	Pénétration complète en 180 minutes	2
Pénétration complète en 120 minutes	Pénétration partielle en 180 minutes	2
Pénétration complète en 150 minutes	Pénétration partielle en 180 minutes	1
Pénétration complète en 180 minutes	Pénétration partielle en 180 minutes	1

dine à travers les 39 lésions que présentaient les 37 dents ainsi traitées. Les résultats sont indiqués dans les tableaux 6 et 7.

Une des lésions du 4ème groupe avait été complètement pénétrée par l'éosine en 30 minutes; l'autre ne l'avait été que partiellement en 180 minutes. Après le traitement, toutes deux sont demeurées im-

perméables au bleu de toluidine, même après une immersion de trois heures.

Une des lésions du 2ème groupe, qui s'était colorée à l'éosine en 150 minutes, n'a mis que 30 minutes à se colorer au bleu de toluidine après avoir été traitée. Une autre lésion de ce groupe a montré un début plus rapide de coloration après le traitement.

5. *Comparaison de la perméabilité initiale avant et après le traitement par une solution saturée de tissus dentaires dans l'acide lactique.* — Pour préparer la solution, on a employé 21 dents extraites (16 temporaires et cinq permanentes, la plupart des molaires) fixées dans la formaline à 8 pour cent et lavées à l'eau courante. On a pris soin d'enlever à la curette les caries molles et les restes de périodonte, de façon à n'avoir affaire qu'à du tissu dentaire sain.

Les dents ainsi préparées sont déposées dans un bécher contenant 1,000 ml d'acide lactique 0.2N à un pH de 2.75. Le bécher est scellé au moyen de 'parafilm' et agité de façon intermittente.

Au bout de six jours, le pH de la solution est passé de 2.75 à 4.55. La solution est filtrée, et son pH est porté à 6.7 au moyen de NaOH à 0.2N.

A chaque addition d'hydroxyde de sodium, il y a formation d'un précipité qui disparaît à l'agitation. Lorsqu'on atteint un pH de 6.3 le précipité demeure de façon permanente.

Des dents porteuses de caries initiales dont la perméabilité à l'éosine avait déjà été éprouvée, ont été immergées dans cette solution à la température de la pièce dans quatre récipients différents. Le pH initial qui était de 6.7 est passé, au bout de 72

heures, à 5.8, 5.9 et 6.4 dans chacun des récipients.

Les 32 dents portant 39 lésions ainsi traitées ont ensuite été immergées dans le bleu de toluidine pour en déterminer la rapidité de pénétration. Les résultats sont inscrits dans les tableaux 8 et 9.

Dans le groupe numéro 4, trois lésions avaient été colorées complètement par l'éosine en 30 minutes; une l'avait été complètement aussi en 90 minutes.

Après avoir été soumises à l'effet de la solution décrite plus haut, toutes sont demeurées imperméables au bleu de toluidine, même après une immersion de trois heures.

Les deux lésions du 2ème groupe s'étaient colorées complètement à l'éosine en 60 et 120 minutes, avant le traitement. Après, elles se sont colorées au bleu de toluidine en 30 minutes.

6. *Comparaison de la perméabilité des caries initiales avant et après le traitement par une solution saturée de tissus dentaires dans l'acide lactique, dont le pH initial de 5.5 fut graduellement porté à 7.2.* — La solution employée ici a été préparée de la même façon que celle qui a servi à l'expérience préalable (numéro 5).

TABLEAU 8 Comparaison de la perméabilité des caries initiales avant et après le traitement par une solution saturée de tissus dentaires dans l'acide lactique.

Résultats	Nombre de lésions
1. La perméabilité est inchangée	15
2. Pénétration plus rapide après le traitement	2
3. Pénétration plus lente après le traitement	18
4. Avant le traitement, pénétration complète; après le traitement, aucune pénétration	4
Total	39

TABLEAU 9 Détails du 3e groupe du tableau 8.

Avant	Après	Nombre de lésions
Pénétration complète en 30 minutes	Pénétration partielle en 180 minutes	8
	Pénétration complète en 150 minutes	1
	Pénétration complète en 90 minutes	2
Pénétration complète en 60 minutes	Pénétration partielle en 180 minutes	3
Pénétration complète en 90 minutes	Pénétration partielle en 180 minutes	1
Pénétration complète en 120 minutes	Pénétration partielle en 180 minutes	2
Pénétration complète en 150 minutes	Pénétration partielle en 180 minutes	1

TABLEAU 10 Variations de pH de la solution saturée de tissus dentaires dans l'acide lactique.

Date	Heure	pH
12/8/63	5 h.15 p.m.	initial 5.5
13/8/63	10 h.15 a.m.	vérifié 5.5
13/8/63	10 h.30 a.m.	ajusté à 5.7
13/8/63	1 h.30 p.m.	vérifié 5.75
13/8/63	1 h.45 p.m.	ajusté à 5.95
13/8/63	4 h.45 p.m.	vérifié 5.95
13/8/63	5 h.00 p.m.	ajusté à 6.15
14/8/63	10 h.45 a.m.	vérifié 5.95
14/8/63	11 h.00 a.m.	ajusté à 6.35
14/8/63	2 h.00 p.m.	vérifié 5.9
14/8/63	2 h.15 p.m.	ajusté à 6.65
14/8/63	4 h.30 p.m.	vérifié 6.1
14/8/63	4 h.45 p.m.	ajusté à 7.6
15/8/63	11 h.45 a.m.	vérifié 6.55
15/8/63	12 h.00 a.m.	final 7.2

Le pH original de 2.7 est passé à 4.65 après un contact de six jours avec les dents à dissoudre. Avant que la solution ne serve à traiter les lésions perméables, le pH fut ajusté à 5.5 avec une solution de NaOH à 0.2N. Ce pH initial de 5.5 fut porté graduellement à 7.2 par six additions successives d'hydroxyde de sodium.

Le pH a été mesuré soigneusement avant et après chaque modification. On a constaté qu'il ne demeurait pas constant après chaque ajustement, mais avait plutôt tendance à se modifier quelque peu (Tableau 10).

Ces épreuves ont été faites sur deux séries de dents différentes: la première comprenait 20 dents portant 26 lésions, la deuxième série comprenait 29 dents avec 34 lésions. La technique a été identique, mais les pH légèrement différents. Toutes les dents ont été soumises à l'action du bleu de toluïdine dont on a étudié la pénétration (Tableau 11).

Dans le groupe numéro 4, deux lésions avaient mis 30 minutes à se colorer complètement à l'éosine, une avait mis 180 minutes, alors qu'une autre n'avait été que partiellement colorée en 180 minutes. Après le traitement, elles sont toutes demeurées imperméables au bleu de toluïdine, même après une immersion de trois heures.

Les lésions du 2ème groupe qui avaient mis de 90 à 180 minutes à se colorer complètement à l'éosine avant le traitement, n'ont pris que 30 minutes à se colorer au bleu de toluïdine après.

7. Etude de la pénétration d'une solution tampon de lactate dans des caries initiales imperméables. — Pour cette partie de notre travail, nous avons choisi neuf dents portant des caries initiales brunes de l'émail, qui étaient demeurées complètement imperméables à l'éosine en trois heures, et six dents portant des lésions dans lesquelles l'éosine ne pénétrait que lentement et partiellement. Ces dents ont été soumises à l'effet d'une solution tampon de lactate préparée d'après Lemieux⁴ (lactate de Na 0.5M et acide lactique 0.5M); le pH est ajusté à 5.12 et le tout maintenu à une température de 37°C.

Afin de pouvoir vérifier le degré et la vitesse de pénétration, la solution de tampon de lactate est additionnée de bleu de toluïdine en poudre à raison de 1 Gm pour 100 ml.

Trente-deux dents portant 36 lésions différentes ont été traitées de cette façon et examinées toutes les demi-heures pour une période de trois heures. Les résultats sont inscrits au tableau numéro 13.

DISCUSSION

Il serait préférable de faire les expériences sur des dents fraîches, mais il est très difficile d'obtenir en temps voulu des dents extraites avec des caries initiales en quantité suffisante.

Les expériences faites sur des lésions naturelles sont sujettes à plusieurs facteurs variables. Comme nous ne voulons pas comparer les méthodes et les solutions utilisées dans les groupes relativement petits de lésions, nous ne pouvons faire l'analyse statistique de nos résultats et il faut les évaluer avec précaution.

La technique que nous venons de décrire permet de mesurer le degré de pénétration d'un colorant avec une assez grande précision, ce qui est avantageux dans l'étude des cas particuliers.

Nous avons classifié les lésions d'après leur perméabilité. Certaines sont facilement perméables, alors que d'autres ne le sont à peu près pas. Nos travaux nous ont permis de confirmer que la perméabilité ne dépend pas du volume de la lésion. On trouve en effet dans tous nos groupes

TABEAU 11 Comparaison de la perméabilité des caries initiales avant et après le traitement par une solution saturée de tissus dentaires dans l'acide lactique, dont le pH initial de 5.5 fut graduellement porté à 7.2.

Résultats	Nombre de lésions
1. La perméabilité est inchangée	21
2. Pénétration plus rapide après le traitement	7
3. Pénétration plus lente après le traitement	28
4. Avant le traitement, pénétration complète; après le traitement, aucune pénétration	4
Total	60

TABEAU 12 Détail du 3e groupe du tableau 11.

Avant	Après	Nombre de lésions
Pénétration complète en 30 minutes	Pénétration partielle en 180 minutes	8
	Pénétration complète en 180 minutes	1
	Pénétration complète en 90 minutes	4
	Pénétration complète en 60 minutes	1
Pénétration complète en 60 minutes	Pénétration partielle en 180 minutes	3
	Pénétration complète en 90 minutes	2
Pénétration complète en 90 minutes	Pénétration partielle en 180 minutes	1
Pénétration complète en 120 minutes	Pénétration partielle en 180 minutes	4
Pénétration complète en 150 minutes	Pénétration partielle en 180 minutes	3
Pénétration complète en 180 minutes	Pénétration partielle en 180 minutes	1

TABEAU 13 Caries initiales imperméables traitées à la solution tampon de lactate.

Avant	Après	Nombre de lésions
Aucune pénétration en 180 minutes	Aucune pénétration en 180 minutes	2
	Pénétration partielle en 180 minutes	11
	Pénétration complète en 180 minutes	3
	Pénétration complète en 120 minutes	3
	Pénétration complète en 90 minutes	2
Pénétration partielle en 180 minutes	Pénétration partielle en 180 minutes	6
	Pénétration complète en 180 minutes	1
	Pénétration complète en 150 minutes	2
	Pénétration complète en 120 minutes	4
	Pénétration complète en 90 minutes	1
	Pénétration complète en 30 minutes	1
Total		36

des lésions dont la profondeur varie entre 1.5 mm et 0.1 mm.

La solution redurcissante de Koulourides, Cueto et Pigman redurcit les surfaces de l'émail artificiellement ramolli par des solutions acides. Ayant utilisé cette solution dans des circonstances différentes et pour des buts différents, il est évident que nos résultats ne sont pas comparables à ceux des auteurs cités.

Nous avons choisi d'utiliser des solutions de phosphate de calcium parce qu'il

est facile de les préparer et de les reproduire avec grande précision.

Les solutions de tissus dentaires ont été employées parce qu'elles se trouvent probablement dans les lésions naturelles in vivo, et aussi parce qu'il n'aurait pas été possible de les reproduire exactement à partir de produits chimiques purs.

Ayant employé de différentes façons des solutions de phosphate de calcium, nous avons inscrit la totalité de nos résultats au tableau numéro 8. Douze lésions qui

TABLEAU 14 Caries initiales perméables traitées aux solutions de phosphate de calcium.

Groupe	Numéro de l'expérience					Nombre total
	2	3	4	5	6	
1. Perméabilité inchangée	11	11	10	15	21	68
2. Pénétration plus rapide après le traitement	7	1	2	2	7	19
3. Pénétration plus lente après le traitement	20	12	25	18	28	103
4. Avant le traitement, pénétration complète; après le traitement, aucune pénétration	2		2	4	4	12
Total	40	24	39	39	60	202

étaient originellement perméables à l'éosine sont devenues imperméables après le traitement à la solution de phosphate de calcium. Dans 103 autres cas, les lésions sont demeurées quelque peu perméables, mais beaucoup moins qu'elles ne l'étaient originellement.

Il semble donc que dans un grand nombre de cas, la solution de phosphate de calcium ait pu diminuer la perméabilité des lésions initiales de la carie.

La solution tampon de lactate à un pH acide peut pénétrer dans des lésions qui sont imperméables à une solution aqueuse d'éosine. Ceci n'est pas surprenant, car on sait que la solution acide de lactate peut décalcifier et pénétrer l'émail sain. Le temps nécessaire à la pénétration semble assez long, si on le compare à la durée des périodes d'acidité mesurées dans les plaques bactériennes que l'on trouve sur les dents naturelles in vivo.

Cette étude montre dans quelles circonstances certaines solutions peuvent soit augmenter soit diminuer la perméabilité de la lésion initiale de la carie. Nous supposons qu'un agent qui diminue la perméabilité de la lésion ralentit le processus de la carie, alors qu'un agent qui en augmente la perméabilité accélère la carie.

RÉSUMÉ ET CONCLUSIONS

Sur une surface usée et polie, recouverte d'un vernis transparent, on peut observer microscopiquement en lumière réfléchie la pénétration des solutions colo-

rantes dans les lésions de caries initiales de l'émail.

On a mesuré le progrès de la pénétration du bleu de toluidine dans les caries initiales.

On a ensuite comparé la perméabilité des caries initiales avant et après qu'elles aient été traitées avec les solutions suivantes:

- 1. La solution redurcissante de Koulourides, Cueto et Pigman;
- 2. Des solutions saturées de phosphate de calcium dibasique dans l'acide lactique;
- 3. Des solutions saturées de tissus dentaires dans l'acide lactique;
- 4. La solution tampon de lactate.

Les solutions de phosphate de calcium et de tissus dentaires peuvent ralentir la pénétration du colorant dans les caries initiales. Dans certains cas, des lésions qui étaient originellement facilement perméables sont devenues imperméables.

La solution tampon de lactate à un pH acide peut pénétrer dans les lésions qui sont imperméables à un colorant neutre.

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*Chargé d'enseignement, Faculté de chirurgie dentaire, Université de Montréal.
1. Mézl, Z. Étude de la zone superficielle de la carie de l'émail. Rev. Franç. Odontostomat. 9:47, 1962.
2. Manly, R. S., Emerson, W. H. et Kapur, K. K. Method for study of penetration of enamel by acid buffers. J. D. Res. 40:891, 1961.
3. Koulourides, T., Cueto, H. et Pigman, W. Re-hardening of softened enamel surfaces of human teeth by solutions of calcium phosphates. Nature (Lond.) 189:226, 1961.
4. Lemieux, Bertrand. Lésions de l'émail produites "in vitro" par une solution tampon de lactate. J.A.D. Canad. 27:475, 1961.

Creative activities for the retired dentist

L. G. Robinson, DDS, Galiano, British Columbia

As a group, dentists seem strangely reluctant to terminate their years of practice and retire to enjoy well earned relaxation and recreation. Perhaps that is because of devotion to their occupation and their duty to the public. There may also be other reasons.

Provision for retirement instituted a couple of decades ago is far from adequate today, and the progressive erosion in the value of the dollar shows no sign of levelling off. Also, the dentist whose retirement plans include such items as world travel, expensive cars and cruisers, together with a higher than average standard of living, may have to keep his nose to the grindstone until the ability to enjoy such pleasures has vanished.

Another compelling reason for remaining in practice is the fear of what may develop after the office door is closed for the last time. Much publicity has been directed to the professional man's life expectancy after retirement. It has been pointed out that survival chances diminish unless careful plans are made for the period of transition and subsequent years. Determination to maintain the status quo, perhaps influenced by demands from old and valued patients to continue just a little longer, may well result in distressing circumstances during those years when we should be reaping the rewards of long service.

Plans set up in advance of retirement age can reduce subsequent problems and help to eliminate later distress. The early years of practice call for more time than we seem to have to devote to development of the practice, raising a family and providing for their security and education. The demands of civic and social obligations, continuing education and refresher courses, recreation and healthful exercise, and the multitude of considerations that beset the busy practitioner leave little opportunity for thought about the later years. But it is at this time that the right type of retirement occupation should be planned and gradually developed. This subject should command the attention of the younger practitioner who must think not only of retirement activities but also the recreation and relaxation necessary for those periods when the problems of daily practice impinge excessively on his off duty hours. A carefully planned and developed hobby will not only smooth the path between active practice and retirement but may well abolish the reluctance to stop working while there is still time and health to enjoy retirement.

Dentists are adept in the use of their hands and display considerable ingenuity in the solution of many problems. They have a well developed artistic sense and a lively imagination. This being so, it is surprising that so few acquire a creative



Two samples of the author's woodwork crafted from juniper.

hobby which takes advantage of these natural and developed talents. Many dentists are proficient in certain forms of the arts, music or sports. Here and there a dentist becomes involved in some form of youth activity or other worthwhile community service. All of these may be beneficial and healthful activities, but few supply the creative outlet that most retired dentists yearn for as soon as that wonderful sense of freedom from daily work palls, as it surely must for all active folk.

Something more is needed and should be added quite early in one's professional life. Preparation for retirement should be a major theme, one that is almost as essential as the preparation for practice. Emphasis should be laid on a creative outlet that combines the artistic with imagination and craftsmanship. There are many good hobbies in this class. The one that particularly interests me is woodcraft.

There are varieties of woodcraft, too. The cabinet worker finds satisfaction in the precision of fitting and finishing fine cabinets and furniture. He may work according to ready-made plans or he may design his own objects. A wide variety of lumber and other materials is readily available.

No such facilities are at hand for those

who choose to develop woods as they are found in the natural state. There are many types of such material, but specimens are not easily found in the more frequented regions. Appropriate forms or shapes lend themselves to development into human or animal figures, or as articles of beauty or for various useful purposes. Examples of such woodcraft are to be seen in many shops in cities or holiday resort areas in the form of lamps, candelabras, picture frames, canes and many other ornamental and useful objects. The field is wide open and is limited only by the imagination and artistic sense of the worker.

On sea coasts, river banks and lake shores are to be found many strangely shaped pieces of driftwood which can sometimes be developed and finished attractively in the natural driftwood colour. Diligent search may provide some specimens that already resemble animal or human form, although the most frequented areas have been long since combed over.

Along the coasts and in some inland regions one may encounter some specimens that have been grotesquely but attractively distorted by the influence of winds and climate. Some of these pieces reveal beautiful tones of yellow, red and orange in their inner structure, and these speci-

mens offer additional possibilities for the development of artistic shapes and tones in the finished product.

A day's prowling, with some dallying in choice fishing spots, will provide the ultimate in enjoyment for those so inclined.

Good weather of the open seasons is for hunting and stocking up with material. On less pleasant days wood may be sorted and classified. Green bark is peeled off, and the wood is stored in a dry, airy place for future attention. During inclement weather, when it is either too wet or too cold to work outside, the material is brought to the workshop, one piece at a time, examined closely for design and use, and shaped and finished in comfort.

Thoughts of woodwork may generate visions of costly power machinery and equipment. Those who choose to work on furniture and cabinetwork may find the cost of such machinery a substantial factor, but if it is acquired by degrees through the active years the problem is not too great.

Other types of woodcraft require no great financial outlay. A pocket knife, a few files and sandpaper are sufficient in some fields. For the well fitted workshop a few power tools are desirable. A table saw, bandsaw and jointer will help to eliminate many tiring hours of hand labour in roughing out and processing the natural forms of wood. Those who enjoy the precision of wood turning will find a power lathe a source of much pleasure and entertainment. The need for other minor tools may become apparent as the work progresses.

In this field, as in many others, foresight during years of practice will pay high dividends. We use many instruments in dental practice that will find a useful place in any hobbycraft workshop. In my workshop may be found such assorted dental items as an operating stool; the base of an old dental chair which serves

splendidly as a base for a power saw-jointer combination; various hand instruments; forceps, rongeurs and bone files; an engine arm with handpiece and countless burs, stones and abrasives; and a laboratory lathe complete with all buffing and polishing materials, arbors, sandpaper cones, and so forth. Even barbed broaches have been useful and many other dental items find some use. The air compressor that proved inadequate when high-speed equipment was introduced now finds a place beneath my workshop bench and is frequently useful.

Before exchanging obsolete equipment with almost no trade-in value, one should consider its potential use in a workshop. A washing machine that gave up the ghost has provided me with an excellent geared-down motor to operate a belt sander. A little ingenuity in this respect brings much satisfaction and vastly reduces the cost of workshop equipment.

With some artistic sense, imagination and dexterity in handcraft, unusual forms of natural woods may be converted into attractive objects similar to those which grace the shelves of woodcraft shops in resort areas.

The search for raw material may lead one far afield, for areas much frequented by tourists and summer vacationers will have been picked over. But we are fortunate to live in a land of vast and almost untouched forests. Our coasts and streams, moreover, though often not easily accessible, are the more interesting for that reason. The hunt is rewarding for those who prefer to bring home something more than insect bites and sunburn, for those who look forward to pleasant hours of creative effort in the workshop when too much leisure becomes unbearable.

The author would welcome communications or enquiries from readers in response to this article.

P.O. Box 35, Galiano

1963 Survey of Dental Practice

12. Dental expenditures and utilization of services

Bureau of Economic Research

The average Canadian dental patient spent \$19.76 on dental services in 1963. Expenditures per patient were highest in British Columbia (\$26.54) and Ontario (\$22.88). In the Atlantic provinces the average patient spent \$15 to \$16. Expenditures were lower in Quebec (\$14.86) and Saskatchewan (\$14.11) while in Manitoba and Alberta they averaged between \$19 and \$20.

The amounts spent on dental services were considerably higher for dental patients living in large cities than for patients inhabiting smaller communities. In towns with less than 15,000 people, the average patient spent \$15 or less for his dental care. Average expenditures of patients living in cities of between 15,000 and 50,000 residents were within the range of \$18 to \$20 while patients in cities with populations of 50,000 or over spent more than \$20 on dental care. Those dental patients living in cities of over half a million people, where dental services are more available and more expensive, averaged \$25.48.

The average annual expenditure per patient receiving dental services from a

Enquête de 1963 sur la profession dentaire

12. Coût et étendue des soins dentaires

Bureau des recherches économiques

En 1963, le patient canadien moyen a dépensé \$19.76 en soins dentaires. Les dépenses par patient sont les plus fortes en Colombie britannique (\$26.54) et en Ontario (\$22.88). Dans les provinces maritimes le patient moyen a dépensé de \$15 à \$16. Les dépenses sont plus faibles au Québec (\$14.86) et dans la Saskatchewan (\$14.11) tandis que dans le Manitoba et l'Alberta elles se tiennent entre \$19 et \$20.

Les dépenses en soins dentaires sont considérablement plus élevées chez les patients des grandes villes que chez ceux des petites localités. Dans les villes de moins de 15,000 habitants, le patient moyen dépense \$15 ou moins en soins dentaires. Les dépenses moyennes des patients qui habitent les villes de 15,000 à 50,000 habitants sont de \$18 à \$20, alors que les patients des villes de 50,000 habitants ou plus dépensent plus de \$20. Dans les villes qui dépassent le demi-million d'habitants, où les soins dentaires sont plus faciles à obtenir et plus chers, le patient dépense en moyenne \$25.48.

La dépense annuelle moyenne du patient traité par un omnipraticien est

general practitioner was \$18.87. In addition to this amount, patients of oral surgeons spent on the average \$15.90, periodontists' patients spent \$50.24 and orthodontists' patients \$100.02.

CANADIANS SPEND CLOSE TO \$150 MILLION FOR DENTAL CARE

The average gross income figures obtained from this survey provide a means of estimating the amount of money spent by the people of Canada on private dental services. The validity of these figures, as of all others contained in this survey, depends on the representativeness of the survey sample. If the average gross income earned by all dentists in private practice was close to the average earned by the survey's respondents then Canadians spent approximately \$148,300,000 on dental services in 1963. This was an expenditure of \$7.85 for every man, woman and child in Canada or \$8.46 for every member of the population over two years of age.

The range of per capita expenditures for the 10 provinces was very wide — ranging from a high of \$11.26 in British Columbia to a low of only \$2.36 in Newfoundland. Per capita expenditures in the other three Atlantic provinces were around \$4.50. Expenditures in Quebec and Saskatchewan were fairly close, being \$5.40 and \$5.97 respectively, while they were considerably higher in the remaining provinces: \$7.25 in Manitoba, \$8.45 in Alberta and \$10.47 in Ontario.

40 PER CENT OF THE POPULATION SEES A DENTIST

The percentage of the population seeing a dentist has increased significantly since the previous Surveys of Dental Practice were conducted in 1953 and 1958. Whereas following the latter surveys it was stated that in a given year only one-third of the nation's population visited a dentist, the current survey indicates that the percentage receiving dental services was 40 per cent in 1963. The demand for dental services is no doubt rising with a gradu-

de \$18.87. En plus de cette somme, le patient du chirurgien buccal dépense en moyenne \$15.90, celui du périodontiste \$50.24 et celui de l'orthodontiste \$100.02.

LES CANADIENS DÉPENSENT PRÈS DE \$150 MILLIONS EN SOINS DENTAIRES

Les chiffres de revenu brut moyen déclarés à l'enquête permettent d'évaluer les sommes dépensées en soins dentaires par les Canadiens. Ces chiffres, comme tous ceux que l'enquête contient, sont valables dans la mesure où l'échantillonnage de l'enquête est représentatif. Si le revenu brut moyen de tous les dentistes en exercice privé se rapproche du revenu des dentistes qui ont répondu à l'enquête, les Canadiens ont dépensé approximativement \$148,300,000 en soins dentaires en 1963. Ceci représente une dépense de \$7.85 pour chaque homme, femme ou enfant au Canada, ou \$8.46 pour chaque habitant âgé de plus de deux ans.

Les dépenses par habitant varient beaucoup entre les 10 provinces: elles se situent entre \$11.26 (en Colombie britannique) et \$2.36 (à Terre-Neuve). Les dépenses par habitant sont d'environ \$4.50 dans les trois autres provinces maritimes. Au Québec et dans la Saskatchewan les dépenses sont très voisines: \$5.40 to \$5.97 respectivement, tandis qu'elles sont beaucoup plus fortes dans les autres provinces: \$7.25 dans le Manitoba, \$8.45 en Alberta et \$10.47 en Ontario.

QUARANTE POUR CENT DES GENS CONSULTENT UN DENTISTE

Le pourcentage de gens qui voient un dentiste s'est considérablement accru depuis 1953 et 1958, dates des Enquêtes précédentes sur la profession dentaire. Alors que ces enquêtes indiquaient qu'au cours d'une année un tiers seulement de la population du pays consultait un dentiste, l'enquête présente révèle que 40 pour cent ont reçu des soins dentaires en 1963. La demande de soins s'accroît sans doute parce que les gens attachent de plus en plus d'importance à leur santé

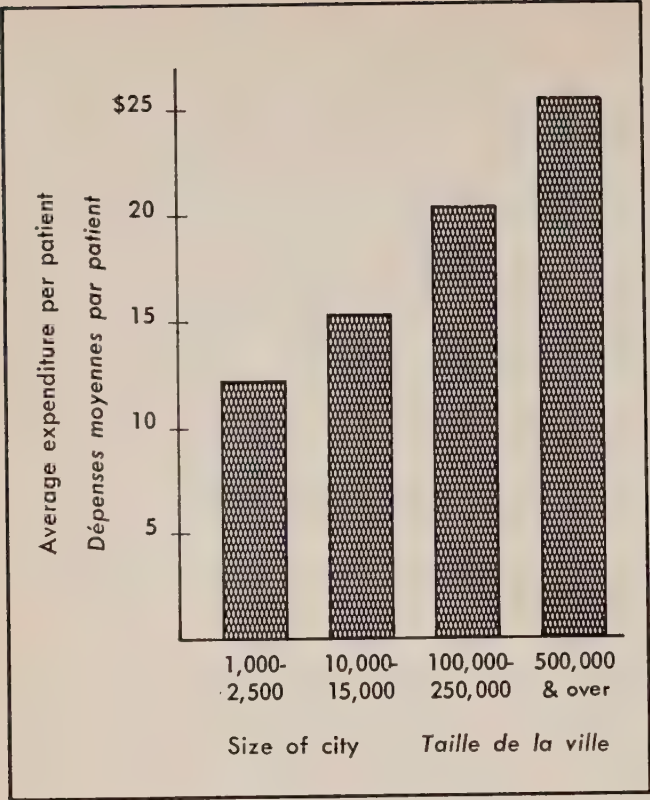


FIGURE 1 Patients in large cities spend more on dental services. • Les patients des grandes villes dépensent plus en soins dentaires.

ally growing awareness of the importance of dental health; but, to achieve the improvement in the percentage of the population receiving dental care, dentists had to combat a rapidly deteriorating dentist: population ratio. (Between 1953 and 1963, the population of Canada grew almost twice as fast as the number of dentists licensed to practise.¹) Greater utilization of auxiliary personnel, technical innovations and improvements in practice administration and clinical techniques have all contributed to the average dentist's ability to provide more dental services.

According to dental health authorities, everyone over the age of two years should see his dentist twice a year. It is estimated that, in 1963, 43 per cent of the Canadian population over the age of two saw a dentist at least once. The percentages varied greatly across the country, from 17 per cent in Newfoundland to 49 per cent in Ontario. Alberta, Saskatchewan and British Columbia as well as Ontario, had higher rates of utilization of dental services than the nation as a whole. In the other provinces, less than 40 per cent of the population aged three years and over visited a dentist during 1963.

1. Canadian Dental Association. Bureau of Economic Research. Dental Personnel in Canada, 1963. J. Canad. D.A. 29:341, 1963.

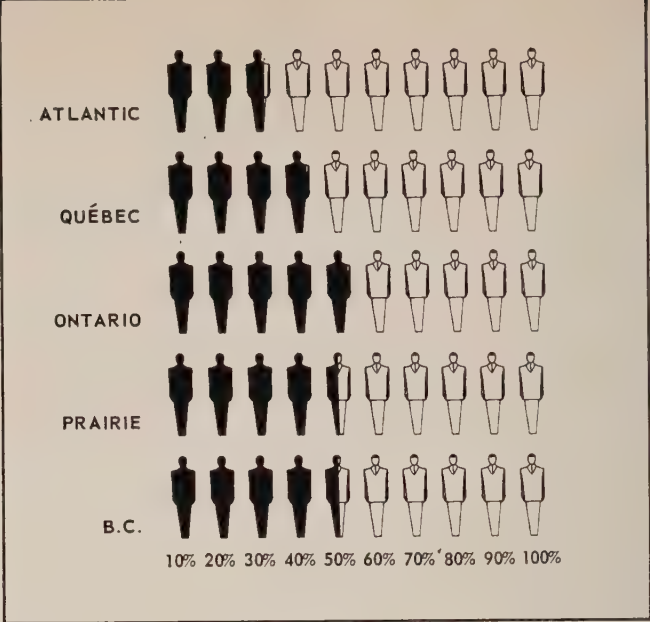


FIGURE 2 Forty-three per cent of all Canadians over two years old visited the dentist in 1963 • Quarante-trois pour cent des Canadiens âgés de plus de deux ans ont consulté un dentiste en 1963.

dentaire; mais pour améliorer le pourcentage de gens qui reçoivent des soins, les dentistes ont dû lutter contre un quotient dentiste/nombre d'habitants qui se dégradait rapidement. De 1953 à 1963 la population du Canada a augmenté presque deux fois plus vite que le nombre de dentistes en exercice. L'accroissement du nombre des auxiliaires, les innovations scientifiques, les améliorations de la gestion du cabinet et des techniques cliniques sont autant de facteurs qui ont aidé le dentiste à fournir davantage de soins.

D'après les autorités en hygiène dentaire, toute personne âgée de plus de deux ans devrait voir son dentiste deux fois par an. On estime que, en 1963, 43 pour cent de la population canadienne âgée de plus de deux ans a vu un dentiste au moins une fois. Les pourcentages varient beaucoup suivant la région; ils vont de 17 pour cent à Terre-Neuve à 49 pour cent en Ontario. L'Alberta, la Saskatchewan et la Colombie britannique et l'Ontario ont des taux d'utilisation des services dentaires plus forts que l'ensemble du pays. Dans les autres provinces, moins de 40 pour cent de la population âgée de trois ans et plus a consulté un dentiste en 1963.

Ce communiqué est un résumé de l'Enquête de 1963 sur la profession dentaire publiée par le Bureau des recherches économiques.

This report is condensed from the Survey of Dental Practice, 1963 published by the Bureau of Economic Research.

les actualités dentaires

Canada

Prix centenaire de la Banque Royale du Canada

La Banque Royale du Canada offrira en 1967 un prix de \$50,000 à un canadien ou une personne domiciliée au Canada. Le président W. E. McLaughlin de la Banque Royale a déclaré que cette initiative sera la contribution de la banque à la célébration du centenaire de la confédération canadienne.

Seront éligibles les individus qui auront fait des contributions remarquables aux sciences naturelles ou sociales, aux arts et humanités ou dans le monde des affaires et de l'industrie, pour le bien commun du Canada ou du monde entier.

Un comité indépendant se chargera de juger les candidats et de choisir les gagnants. Le concours se répétera chaque année, pour une période de cinq ans, à partir de 1967.

"Nous croyons qu'il faut poser un acte tangible pour marquer les contributions des citoyens canadiens" a écrit Monsieur McLaughlin au Dr P. S. Christie alors président de l'ADC. "Vous, ou vos collaborateurs, connaissez peut-être des hommes ou des femmes dont les réalisations devraient être portées à la connaissance du comité de sélection."

Lauréats de l'exposition scientifique

Soixante-quatorze finalistes qui avaient d'abord remporté des honneurs aux 27 expositions scientifiques régionales, tenues d'une extrémité du Canada à l'autre, ont participé à la cinquième exposition scientifique canadienne tenue à l'Université de Windsor du 12 au 14 mai. Les gagnants des deux prix de l'Association dentaire canadienne sont Marijane Doyle, étudiante

de 10ème année de Welland en Ontario, et Colin Griffiths, étudiant de 8ème à Victoria.

L'Association dentaire canadienne est l'un des commanditaires de la fondation scientifique de la jeunesse (anciennement connue sous le nom de conseil des expositions scientifiques canadiennes). C'est le docteur T. H. Wachna de Windsor qui, cette année, a représenté l'Association au comité des juges.



Les lauréats de l'exposition scientifique canadienne Marijane Doyle de Welland, Ontario, (au centre), et Colin Griffiths de Victoria, reçoivent les prix de l'ADC des mains de M. Bernard Dumont de la Commission scolaire de la ville de Québec.

Durcissement de la discipline professionnelle en Ontario

Un amendement à la loi dentaire, présenté à la législature ontarienne le 7 juin par le Royal College of Dental Surgeons, permettra d'imposer des amendes allant jusqu'à mille dollars aux dentistes qui enfreignent le code d'éthique professionnelle.

Auparavant le Collège avait le droit de réprimande et de suspension, mais n'avait pas le droit d'imposer d'amende.

La nouvelle législation donne aussi au comité de discipline du Collège le droit

d'imposer une suspension allant jusqu'à un an.

A l'heure actuelle, le comité de discipline peut entendre les plaintes mais les sanctions doivent être imposées par le conseil des gouverneurs du Collège. D'après la nouvelle loi, seul le conseil aura l'autorisation d'imposer des sanctions de plus d'un an de suspension ou de révoquer complètement la licence d'un dentiste.

Les dentistes qui font l'objet de mesures disciplinaires ont le droit d'appeler du comité de discipline au Conseil des Gouverneurs du RCDS, et du conseil à la cour d'appel de l'Ontario.

Suivant la nouvelle législation, la suspension prendra effet immédiatement après la décision du comité de discipline, même si le dentiste en question décide de porter sa cause en appel.

Chronique internationale

Réunion de périodontistes à San Antonio

Le 52ème congrès annuel de l'American Academy of Periodontology se tiendra à San Antonio, Texas, du 9 au 12 novembre 1966, à l'hôtel St. Anthony. Des conférenciers et cliniciens de marque dans tous les domaines de la périodontie seront au programme. Tous les membres de la profession dentaire sont invités.

Pour renseignements additionnels, s'adresser à H. A. Hartman, président, comité de publicité, American Academy of Periodontology, 4187 Pearl Road, Cleveland, Ohio 44109, Etats-Unis.

XIVe congrès dentaire mondial à Paris en juillet 1967

Le XIVe congrès dentaire mondial sera tenu à Paris du 7 au 13 juillet 1967, sous les auspices de la Fédération dentaire internationale. Les membres de l'ADC sont tous invités à ce congrès qui est tenu tous les cinq ans et l'on suggère fortement à ceux qui projettent de se rendre à Paris de devenir membres de la FDI, de façon à pouvoir profiter d'une réduction dans les frais d'inscription. Le trésorier de la

FDI pour le Canada, le Dr W. G. McIntosh, fournira les formules d'application sur demande. Son adresse est 234 rue St. Georges, Toronto 5, Ontario.

Le dernier congrès mondial de la FDI avait été tenu en 1962 à Cologne, en Allemagne.

L'ADA approuve un quatrième dentifrice

L'Association dentaire américaine vient d'annoncer qu'elle reconnaît le dentifrice Super Stripe de la maison Lever Brothers comme un agent efficace pour prévenir la carie, et qu'elle l'a classé dans le groupe B. C'est le quatrième dentifrice à recevoir une telle reconnaissance de la part de l'ADA. L'ingrédient actif dans les quatre cas est le fluorure d'étain.

Par la même occasion, le conseil de thérapeutique de l'ADA fait remarquer que le nom, Stripe, a déjà servi à un dentifrice qui ne contenait pas de fluor. Ce produit sera maintenant remplacé par la nouvelle formule à base de fluor que l'on connaîtra sous le nom de Super Stripe de façon à le distinguer de l'ancienne formule.

Le rapport du conseil fait remarquer que les résultats d'une étude de deux ans faite chez les écoliers qui ont employé le dentifrice en question et une pâte de contrôle ont montré une réduction significative dans l'incidence de la carie dentaire. Calculée d'après l'augmentation des surfaces dentaires cariées ou restaurées durant une période de deux ans, la réduction de caries est d'environ 19 pour cent.

Organismes dentaires

Cinq nouveaux 'fellows' au chapitre canadien de l'International College of Dentists

Le Dr D. H. Tanner d'Ottawa est devenu président du chapitre canadien de l'International College of Dentists à la réunion tenue à Halifax le 11 juin. Le Dr T. H. Johns, de Victoria, devient président-élu; le Dr Armand Fortier, de Montréal, vice-président; le Dr J. P. McGuigan, de Halifax, président sortant-de-charge; le Dr

H. R. Skilling, de Toronto, trésorier; et le Dr E. A. White, de Toronto, registraire.

Ont été élus régents, C. M. Whitworth, de Vancouver, District 1; L. T. Allen, de Lethbridge, Alberta, District 2; J. P. Whyte, de Swift Current, Saskatchewan, District 3; W. J. Riley, de Winnipeg, District 4; Murray Purcell, de Pembroke, Ontario, District 5; John Sherman, de Toronto, assistant régent, District 5; W. J. Johnston, de Montréal, District 6; Conrad Godin, de Trois-Rivières, P. Québec, assistant régent, District 6; G. M. Dewis, de Halifax, District 7; et C. L. Strachan, de London, Ontario, rédacteur.

Les docteurs H. N. Beach, d'Ottawa; W. W. Breslin, de Toronto; C. E. Dexter, de Halifax; Harold MacCormack, de Truro, Nouvelle-Ecosse; et J. B. Taylor, de London, Ontario, sont devenus 'fellows' du Collège.

Facultés dentaires canadiennes

Planification du développement académique à l'Université de Montréal

A la suite d'une décision de la Commission des études de l'Université de Montréal, la sous-commission de développement académique reprendra ses travaux sous la présidence de Monsieur Paul Lacoste.

Cette sous-commission a pour but de déterminer la politique générale de développement académique de l'université et à en prévoir les besoins. Elle étudie tous les projets de développement émanant d'une faculté, d'une école ou d'un institut de l'université, et elle fait annuellement rapport à la Commission des études sur les perspectives de développement de l'université. Le docteur Jean-Paul Lussier, doyen de la faculté de chirurgie dentaire, est membre de cette commission.

Corps dentaire royal canadien

Mutation de six officiers

Six officiers dentaires viennent d'être mutés, ce sont:

le Major J. C. R. R. Roy, du Détache-

ment dentaire canadien des Forces de sécurité des Nations Unies au Proche-Orient, à la Compagnie dentaire No. 15 à Montréal;

le Major G. I. J. Bisailon, de la Base des Forces canadiennes de Petawawa en Ontario, au Détachement dentaire canadien au Proche-Orient;

le Major J. L. Craig de l'Unité dentaire de campagne No. 35, en France, au Détachement dentaire No. 1 à Ottawa;

le Major P. H. Guèvremont de la Base des Forces canadiennes de Montréal, au Quartier Général, commandement mobile, à Montréal;

le Capitaine R. W. C. Adams, du Détachement dentaire No. 1 d'Ottawa, à l'Unité dentaire de campagne No. 35, en France;

le Capitaine J. A. Nattress, du Détachement dentaire canadien des Forces de sécurité des Nations Unies au Proche-Orient, à la Compagnie dentaire No. 13 à Trenton, en Ontario.

Le CDRC a formé 884 auxiliaires en 17 ans

Le Corps dentaire royal canadien a donné une formation professionnelle à 884 employés dans le domaine de la dentisterie, depuis le mois d'août 1949. Ces employés se répartissent ainsi: 336 assistants dentaires, 274 techniciens de laboratoire, 89 aides de cliniques, 138 magasiniers et 47 techniciens.

Economie

L'OMSIP couvre maintenant des traitements dentaires faits à l'hôpital

Le Medical Services Insurance Act de l'Ontario vient d'être amendé de façon à verser des compensations pour un bon nombre d'interventions chirurgicales pratiquées par un dentiste sur un patient hospitalisé. On permettra aussi des paiements pour certaines interventions chirurgicales additionnelles lorsqu'elles seront faites à l'hôpital par un chirurgien dentiste "dont les privilèges hospitaliers sont

tels qu'il a le droit de faire ces interventions, à condition que ledit chirurgien dentiste fasse officiellement partie du personnel dentaire de cet hôpital."

Tous les dentistes de l'Ontario recevront sous peu, des autorités de l'Ontario Medical Services Insurance Plan, un feuillet indiquant la façon correcte de procéder.

Fluoration

Législation albertaine sur le fluor

Grâce à un amendement apporté au Public Health Act le 18 avril, une majorité simple suffira maintenant pour faire accepter un plébiscite relatif à la fluoration. L'ancienne loi Albertaine exigeait une majorité des deux tiers. Cette mesure législative, qui avait fait l'objet de vives discussions, a été approuvée en commission sans commentaire de la part de l'opposition. Le ministre de la santé, l'Honorable J. Donovan, a ensuite proposé un second amendement qui a aussi été approuvé.

A l'avenir, les unités de santé de même que les départements municipaux de santé devront fournir gratuitement des comprimés de fluor à tous les contribuables qui en feront la demande, à condition que ces comprimés leur aient été recommandés par leur médecin ou leur dentiste. Grâce à cet amendement, il deviendra possible d'offrir les bénéfices de l'usage du fluor là où il n'y a pas d'aqueduc ou là où la fluoration n'a pas été approuvée. A la suite du changement intervenu en Alberta, la Colombie britannique devient la seule province qui exige plus qu'une simple majorité pour l'approbation d'un plébiscite sur le fluor. La Colombie britannique exige une majorité de 60 pour cent.

Recherches

Les dentistes doivent prendre part à l'essor des sciences

Le docteur Gordon Nikiforuk, qui a été l'une des principales personnalités de la

campagne qu'ont menée les dentistes en faveur de la fluoration, était de retour à Toronto le 17 mai pour encourager les dentistes à prendre part davantage aux recherches scientifiques fondamentales.

Après avoir dirigé la recherche dentaire à l'Université de Toronto pendant 10 ans, le Dr Nikiforuk est maintenant directeur du service de pédodontie à l'Université de Californie à Los Angeles. Il avait été invité à parler devant le 99ème congrès annuel de l'Association dentaire de l'Ontario.

La recherche scientifique sur une grande échelle, a-t-il dit, dépasse jusqu'à un certain point les dentistes, les médecins, les ingénieurs et la plupart des hommes de science. Les connaissances que l'étudiant assimile aujourd'hui à grand peine au cours de ses études auront changé dans cinq ou 10 ans. Les programmes universitaires devront à l'avenir aider les étudiants et les praticiens à s'adapter à cette situation. Nous devons nous attacher à évaluer ce qui est important et à l'enseigner sous une forme concentrée mais fondamentale.

On dit, a-t-il expliqué, que l'enseignement dentaire combine de façon unique les connaissances scientifiques avec l'art et les techniques de la pratique. Il faut enseigner aux étudiants dentaires d'aujourd'hui une approche qui embrasse diverses disciplines. Nous devons mettre à profit les diverses ressources de l'université pour les aider à résoudre leurs problèmes.

Au cours des dernières années, a poursuivi le Dr Nikiforuk, la dentisterie a bénéficié de découvertes qui ont été faites en biochimie, en cristallographie, en physique et en microscopie électronique. Mais les dentistes ne se sont pas intéressés aux recherches sur les polymères et les produits chimiques, de sorte qu'ils ne disposent pas d'un meilleur matériau d'obturation que l'amalgame du XIXème siècle. Nous devons collaborer avec les autres chercheurs et les ingénieurs pour mettre au point un matériau d'obturation dentaire. Nous ne devons pas attendre les bras croisés que les compagnies commerciales découvrent de nouveaux produits qui pourraient, par hasard, correspondre à nos besoins.

News from Parliament

Canada Medicare Postponed One Year

Sweeping anti-inflationary measures, including a decision to delay implementation of the national medicare program for a year, were announced by Finance Minister Mitchell Sharp in the House of Commons September 8.

Canada medicare was to have started July 1 next year, but will not start until July 1, 1968. But the federal government will probably stand by the substance of its current medicare bill (C-227) when Parliament reassembles this month.

The government had estimated that if all 10 provinces had joined the scheme on July 1, 1967, the total cost of physicians' services would have been \$680 million a year, of which the federal treasury would have provided half or about \$340 million. This estimate was based on a national medical cost average of \$34 a person for 20 million Canadians. The provinces would have had to raise the balance out of tax revenues, premiums or a combination of the two.

Canada and the Provinces

Operative Dentistry Course in Montreal, March 10-11, 1967

Montreal's Mount Royal Dental Society and the Montreal Chapter of Alpha Omega Fraternity will jointly sponsor a two day limited attendance course in operative dentistry March 10 - 11, 1967 at the Montreal General Hospital. G. D. Stibbs will be the clinical lecturer. There will be spe-

cial emphasis on treatment planning, refinements in operative techniques, instrumentation, amalgam restorations, cast gold restorations, aesthetics in restorative dentistry, and current procedures with pure gold.

Applications for enrolment, accompanied by a cheque for \$100 payable to "Operative Course, in trust," should be sent to H. Ptack, 1538 Sherbrooke Street West, Montreal, P. Quebec.

International Items

Dr. Pedersen of Denmark Becomes FDI President

P. O. Pedersen of Denmark was elected president of the Fédération Dentaire Internationale at its 54th annual session in Tel Aviv, Israel, July 10 - 17. He will serve the unexpired term of Knut Gard of Norway, who died last March. Other officers elected were: W. Riis Klausen, Denmark, vice-president; T. G. Meehan, Ireland, assistant secretary; and F. E. Lawton, England, editor. Re-elected were: W. Stewart Ross, England, president-elect; G. H. Leatherman, England, secretary general; J. Stork, Netherlands, treasurer; Harold Hillenbrand, United States, vice-president; and Hans Freihofer, Switzerland, speaker. Total attendance was 1,306, representing 38 countries. Canadian representatives included Herbert Caplan, Montreal; James Zimmerman, Calgary; and CDA Secretary W. G. McIntosh, Toronto.

The General Assembly adopted new rules for radiation hygiene. These will be included in a new manual to be published

by the World Health Organization. In other actions the General Assembly also:

Adopted a new guideline on minimum requirements for the design, conduct and interpretation of controlled clinical trials;

Directed that the Federation co-operate with the Dental Health Division of the World Health Organization in preparing a compendium on the dental situation throughout the world; and

Approved publication of a new book, *The Story of the FDI*, describing the history of the Federation from 1900 to 1962. The book will be available at the Paris World Congress in July 1967 at \$7 a copy.

The first copies of the new FDI dental lexicon were displayed at the Tel Aviv annual session. This publication which contains dental terms in five languages will be distributed free of charge to the Federation's member associations and commission members and advisers and to dental schools, libraries and research institutes throughout the world. Single copies (price \$10) may be ordered from the secretary general, 63 Wimpole Street, London W.1, England.

ADA Formulates Children's Dental Program

The American Dental Association's Board of Trustees, on August 24 - 27, approved

a proposed National Dental Health Program for Children as formulated by the ADA Councils on Dental Health and Legislation and the ADA Bureaux of Dental Health Education, Economic Research and Statistics and Public Information. The proposal, developed at the request of the ADA president, will be sent to the House of Delegates at the ADA's annual session in November. The program is the result of a directive from the 1965 House of Delegates and is designed to bring dental care within the reach of all children in the United States.

Initial emphasis of the program is directed on dental care for needy and underprivileged children. The program envisages that public funds will be used only for care of indigent children.

Dr. Anderson to Address American College of Dentists

The program for this year's annual meeting of the American College of Dentists in Dallas, November 12-13, will include a panel discussion on the provision of dental care for the people of the United States as enacted by the American Congress last year. There will also be a demonstration of a new continuing education group teaching machine.

ACD President P. G. Anderson of Toronto will address the college on Sunday

Frank



Canadian delegates to the 1966 General Assembly of the Fédération Dentaire Internationale at Tel Aviv, Israel, July 10-17, were (l. to r.) James Zimmerman of Calgary, W. G. McIntosh of Toronto and Herbert Caplan, Montreal.

morning, November 13. On Sunday afternoon there will be a paper describing the hospital as a community health asset. All sessions will be held in the Baker Hotel, Dallas, Texas.

Dallas Mid-Winter Clinic Scheduled for Jan. 22-25, 1967

Canadian dentists have been invited to attend the 1967 Dallas Mid-Winter Dental Clinic next January 22 - 25 at the Sheraton-Dallas and Statler-Hilton Hotels.

Further information may be obtained from W. W. Sherrill, executive secretary, Dallas Mid-Winter Dental Clinic, 3200 Maple Avenue, Dallas, Texas, USA.

Dental Organizations

Dr. Gray is President of Alberta Association

R. A. Gray, Medicine Hat, was recently elected president of the Alberta Dental Association when that organization held its 63rd annual meeting in Edmonton. He succeeds G. V. T. Clarke of Edmonton. A. H. Lane, Edmonton, was named vice-president.

Elected to the Board of Directors were G. V. T. Clarke; A. D. Sparrow, Calgary; L. G. Mandin, St. Paul; S. Fleming, Red Deer and J. C. Waddell, Calgary.

Pioneer Dental Office Opened in N. Battleford

Dentistry at the turn of the century was vividly recreated for the public when Saskatchewan's North Battleford Pioneer Village was officially opened on May 28. Intended as a tourist attraction, the village is a project of North Battleford's Western Development Museum. It contains separate buildings honouring different professions and trades. Included is a house with an authentic pioneer dental office. President G. H. Janzen of the Saskatchewan

College of Dental Surgeons cut the ribbon at the official opening of the dental building.

Canadian Dental Schools

Manitoba U Launches 'Dentistry for the Adolescent' Study

The Department of Restorative Dentistry at the Faculty of Dentistry, University of Manitoba, has begun an intensive program of teaching and research in all aspects of dentistry for adolescents. The program was instituted by G. A. Brass, department head, and is being directed by C. R. Castaldi. Children aged 12 - 18 are being followed in the faculty clinic for long term care and study.

Areas under investigation include factors which motivate the adolescent toward dental care, feasibility of fixed bridgework for adolescents, and multiple topical fluoride therapy. Dental plaque studies are being carried out in conjunction with the Division of Oral Biology under the direction of Israel Kleinberg. D. L. Rennie of the Department of Anthropology and Sociology is directing studies concerned with sociological factors affecting dental care for the adolescent patient.

Dr. Dellow Named to Physiology Post at UWO

P. G. Dellow has been appointed associate professor of physiology in the Faculties of Medicine and Dentistry, University of Western Ontario. The appointment dates from July 1.

Dr. Dellow has degrees in medicine and dentistry from the University of Adelaide, Australia.

Prior to this appointment Dr. Dellow was lecturer in oral biology in the Department of Human Physiology and Pharmacology of the University of Adelaide. He has been associated with the Department of Physiology as a teaching fellow in 1959,

a temporary lecturer in physiology in 1959-61, and a lecturer in physiology from 1961 to 1964.



P. G. Dellow

Dr. Crowe, First Dalhousie Dental Graduate, Dies

Allen Boyd Crowe of Annapolis Royal, Nova Scotia, died on August 6 at the age of 80. He was born in Annapolis Royal in 1885. A member of the first graduating class of Dalhousie University's Faculty of Dentistry in 1912, Dr. Crowe received the first diploma in dental surgery when his name was first on the alphabetical roll. He established a large practice in Annapolis Royal which he continued until he retired due to ill health.

Regional Conventions

Toronto Winter Clinic on Nov. 24

November 24 will be this year's date for the annual Winter Clinic of the Toronto Academy of Dentistry at the Royal York Hotel.

The principal clinical lecturers and their subjects are: L. J. Boucher, assistant dean, School of Dentistry, Medical College of Georgia, who will speak on the "Treatment of difficult denture patients;" and Harry Rosen, assistant professor of operative dentistry, McGill University, Montreal, whose topics are "Fixed splinting in periodontics" and "Choice of anterior retainers."

There will also be additional clinical lectures or seminar presentations on operative dentistry, endodontics, oral surgery, orthodontics and oral hygiene. Table clinics and commercial exhibits will round out a diversified all day scientific program.

Joseph McCulley, warden emeritus of the University of Toronto's Hart House and president of the United Nations Association in Canada, will present a luncheon address entitled "Canada-1967 — outward look." The dinner speaker will be CDA President J. P. Coupland.

For further information and hotel reservations write to Academy of Dentistry, Toronto, 230 St. George Street, Toronto 5, Ontario.

1967 Calendar of Canadian Meetings in This Issue

In the Announcements section of this issue the Journal publishes a list of Canadian dental meetings scheduled for the end of this year and through 1967. The Journal hopes to publish updated information periodically, perhaps twice a year. In future issues the form of this calendar may undergo some modification and improvement in order to present the essential information on all domestic meetings.

Economics

Alberta Welfare: Less than One Quarter of Those Eligible Utilize Dental Service

In 1965, 40 per cent of the children eligible to receive dental care under the Alberta pensioners' treatment plan availed themselves of the services. Among adult public assistance recipients, the utilization rate was only 14 per cent.

Average costs per treated beneficiary were \$24.40 for the children and \$27.90 for the adults. Costs per beneficiary were \$9.75 per child, \$2.14 per old age pensioner and \$7.85 per person for other adults.

The Alberta pensioners' treatment plan has been operating for over 18 years.

Alberta Prepayment Plan Progresses

At the 1966 annual open meeting of the Alberta Dental Association, members of the ADA authorized the Board of Directors to secure the services of an actuary to assist in determining premium rates for a proposed prepaid dental plan. The plan now being developed is a "prepaid indemnity type of co-insurance of comprehensive nature." It is expected that the plan will be offered to the general public.

Lack of Motivation Held a Major Factor in Poor Dental Health

A Manitoba study has indicated that "unavailability of dental treatment in rural areas is apparently less significant than was previously assumed." The 1965 report of the Manitoba Department of Health states that "lack of parental motivation to seek preventive and conservative treatment for children emerges as a major factor when poor dental health is encountered in rural children."

The report continues, "assessment of public response to recall dental services every six to eight months indicates that certain areas of the province are not interested in obtaining much more than relief from oral pain and infection for their children and themselves."

US Company Offers Individual Dental Policy

A dental insurance policy for individuals is being offered nationally in the United States by the Reserve Life Insurance Company of Dallas, Texas. The policy lists indemnities payable for restorations, oral surgery, periodontic and endodontic treatment, and prosthodontics. Waiting periods are six months for oral surgery, restorative, periodontic and endodontic care, and two years for fixed bridges or dentures.

The Labour Unions' Approach to Dental Care

In a paper published in the May-June issue of the *Journal of the New Jersey State Dental Society*, the director of the Pension, Health and Welfare Department of the International Union of Electrical, Radio and Machine Workers has outlined what labour wants in a dental prepayment plan. The union official stated, "the ideal plan would be one which can be set forth in one sentence — go to your dentist and we will pay the bill . . . But we have to be a little practical. We have to realize what can be paid for and what can be negotiated." He stressed the following points:

"Prepaid dental insurance . . . ought to be operated as a non-profit corporation."

The plan must "represent both the consumer and the supplier of dental service. . . . Neither side should control it The consumer's representation should [not] be composed entirely of labour people."

"Plans should be of the non-contributory type which are paid for by the company."

"The plan should have several optional forms of coverage . . . full service, full payment type of plan for those who can afford it . . . a deductible clause for those groups who want something a little less elaborate or . . . a co-insurance fee schedule, one in which the dentist accepts this schedule as full payment."

An acceptable, reasonable fee schedule.

As a first step toward negotiating coverage, a plan providing partial coverage with exclusions would be acceptable.

Individual and family coverage should be available.

"It should provide for the free choice of a dentist."

"It should provide for preventive care, and . . . semi-annual check-ups and cleaning."

"The plan should also arrange that before the work is done there is a complete review of the patient's dental needs, and an estimate of the cost."

The dental society should "police the type of care and . . . also police fee charges."

There should be "policing" of utilization to prevent "unnecessary work."

Fluoridation

Kellogg Foundation to Promote Fluoridation in Latin America

The W. K. Kellogg Foundation, Battle Creek, Michigan, has announced that it will join with the Pan-American Sanitary Bureau, Washington, in a massive campaign to promote fluoridation throughout Latin America. The Foundation will provide \$149,644 and the Bureau will contribute \$143,800 to advance fluoridation during the next four years.

In Latin America, fluoridation of public drinking water has been much slower than in North America, with only 4.2 per cent of the population affected by the practice, and there is urgent need to hasten the process of the means of combatting dental caries.

Public Health

Better Teeth but More Children in Toronto

Children who enter kindergarten in Toronto's Riverdale district have notably better dental health than many of their young classmates elsewhere in the city, according to the 1965 annual report of the Toronto Department of Public Health. The department attributes this to 11 years of systematic health teaching and dental inspection aimed at the district's preschool children. The program is carried out by dental hygienists and is supplemented by intensive follow-up treatment. Since 1960 the department has gradually extended this preventive program to other health districts so that by 1965 preschool dental services were available in six of the city's eight health districts.

Dental personnel establishment of the health department has remained unchanged despite a further increase in the school population, which last year exceeded 130,000 children. Nevertheless, there has been an improvement in most

of the dental health indices which have been measured yearly in Toronto children since 1955.

Research

Fluoride Gel Shown a Successful Caries Preventative

An 80 per cent reduction in tooth decay from a fluoride gel was reported August 30 at an American Academy of Pedodontics meeting in Toronto. H. R. Englander, a US National Institute of Dental Research scientist, told the 400 attending Canadian and American paedodontic specialists that preliminary field trials with school children, following successful studies with laboratory animals, are highly encouraging.

For a six minute period each school day, during the two year study period, the children wore a specially fitted plastic mouthpiece similar to athletic mouth protectors and filled with a gel containing 1.1 per cent sodium fluoride. One dental hygienist was able to supervise several hundred children. In view of the serious shortage of dentists and auxiliary personnel, Dr. Englander said, this technique holds great promise, since it enables a dental hygienist to supervise many more children than is possible with current methods of topical application of fluoride.

The study was conducted in Cheektowaga, New York, which does not have a fluoridated water supply. The naturally occurring fluoride in the water is far below the level recommended for the prevention of tooth decay.

Five hundred children, ranging from 11 to 14 years of age, participated in the study. One group of 151 children using one type of fluoride gel and another group of 154 using a different fluoride gel formulation developed only 0.9 and 1.1 new decayed, missing and filled tooth surfaces, respectively, whereas the 195 children not using the gel had 4.4. All the children used non-fluoride dentifrices.

Deciduous teeth shed during the study period showed a strikingly higher concentration of fluoride in the group using the gel. This finding adds to the evidence that fluoride strengthens the teeth and makes them more resistant to decay.

Tests were also conducted to assure the safety of this topical application procedure. Among them, urinalyses showed no important difference in fluoride concentration, indicating that the fluoride remained in the tooth, where it conferred a protective action.

Dr. Englander reported that many of the children who had rampant caries when first examined developed no new cavities during the study. He believes that the new technique will prove especially useful for children with serious caries problems.

Citing the advantages of the mouth protector, Dr. Englander observed that a small quantity of the concentrated gel is in intimate contact with teeth and gingiva for a definite time, is forced into pits and fissures, and cannot be diluted by saliva.

A similar study is planned of children in a fluoridated area to determine if the repeated topical application confers additional protection. Another study to be conducted will determine the results obtained by weekly, rather than daily, applications.

Grants Awarded to Three UBC Faculty Members

Recently awarded fellowships and study grants will permit three staff members of the University of British Columbia's Faculty of Dentistry to pursue new and current research projects.

A Senior Commonwealth Medical Fellowship enabled J. D. Spouge of the Department of Oral Biology to work at the Royal Dental Hospital of London during the summer where he studied the diagnosis and classification of odontogenic tumours.

G. J. Parfitt, head of the Department of Oral Medicine was awarded a grant by the National Research Council of Canada

for "computer analysis of physical characteristics of tooth supporting structures." Dr. Parfitt will also conduct efficiency tests on tooth cleaning appliances under a grant awarded by the General Electric Company.

A public health grant from the Department of National Health and Welfare went to H. K. Brown in support of a continuing study of the status of dentistry in public health.

IADR Offers Fellowships to Foreign Scientists for Studies in USA

The International Association for Dental Research has initiated a Senior Foreign Dental Scientist Fellowship Program aimed at attracting highly qualified foreign dental scientists to participate in research and training projects in the United States.

The program will enable two foreign dental researchers to spend from six to 12 months at an American research centre during the 1966-67 academic year. Three additional foreign scientists will be brought into the program during the second year.

The program provides for flexibility for the institution and fellowship candidate in designing specific research programs.

The foreign dental scientists selected for the program will participate in the graduate education program of their assigned institution and will give lectures at other research and educational institutions.

Funds will be provided to cover the foreign dental researcher's travel to the institution from port of entry and for travel within the United States to participate in programs at other institutions. He will also receive a stipend during the training period.

Interested Canadian dentists may submit applications to the dean of the teaching institution of their choice. Further information on the program can be obtained from A. R. Frechette, IADR executive secretary, 211 East Chicago Avenue, Chicago 60611, USA.



The Armed Forces Dental Services Commission of the Fédération Dentaire Internationale, which met in Tel Aviv during the FDI annual session July 10-17, was under the chairmanship of Brig. K. M. Baird (arrowed), Director General of Dental Services for the Canadian Forces. Lt.-Col. L. A. Richardson and Capt. G. R. Nye are to the right of Brig. Baird.

Frank

Royal Canadian Dental Corps

Three Dental Officers Promoted

Canadian Forces Headquarters recently announced the following promotions and postings:

commanding officer of No. 12 Dental Company in Halifax.

Maj. **A. J. Andrews** of Toronto, presently at the RCDC School, Canadian Forces Base Borden, Ontario, has been promoted to lieutenant-colonel.

Capt. **H. W. Brogan** of Halifax has been promoted to major.

Col. A. T. Roger Retires

Col. A. T. Roger retired last August after 27 years' service with the Royal Canadian Dental Corps. He went overseas during the second World War and was awarded the MBE.

Col. Roger retired as commanding officer of No. 13 Dental Company, Trenton, Ontario, after postwar attachment to Navy, Army and Air Force stations as well as the RCDC School where he has served as chief instructor. Col. Roger has moved to Halifax where he is now associated with the Faculty of Dentistry at Dalhousie University.

Col. R. H. G. Cunningham of Toronto,



Col. S. G. Bagnall

Lt.-Col. **S. G. Bagnall** of Halifax has been promoted to colonel and appointed

heretofore stationed in Halifax, has replaced Col. Roger in Trenton.

Five Officer Cadets Win Awards

Thirty-seven officer cadets from various Canadian dental schools completed their summer training at the RCDC School,



Scd. Lt. H. A. Pankratz



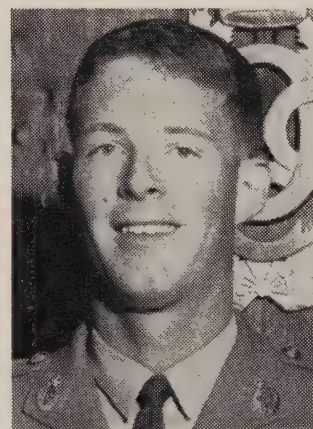
Scd. Lt. T. J. Erskine



Scd. Lt. E. D. Cragg



O. Cdt. E. L. MacInnis



O. Cdt. P. E. Arnold

Canadian Forces Base Borden, Ontario, with a graduation parade on August 11. Summer training is a requirement of the Corps' dental officer subsidization plan.

Brig. K. M. Baird, Director General of Dental Services, presented achievement awards to five cadets.

In the third phase of subsidized training the winners were Second Lt. **H. A. Pankratz**, University of Manitoba, honour cadet, and Second Lt. **T. J. Erskine**, University of Alberta, runner-up. Both officers earned similar awards last year. Second Lt. **E. D. Cragg**, University of Alberta, won the Chief Instructor's Trophy for clinical efficiency.

Officer Cadet **E. L. MacInnis**, University of Toronto, was named honour cadet in the second phase of subsidized training. The runner-up was Officer Cadet **T. E. Arnold** of the University of Alberta.

Awards and Honours

F. J. Gallagher, director of dental services for the Greater Vancouver Metropolitan Board of Health, has been elected president of the British Columbia Branch, Canadian Public Health Association.

Deaths

Cairns, James Thompson. 60. North Battleford, Saskatchewan. University of Toronto, 1933. 27-8-66.

Crowe, A. B. 80. Annapolis Royal, Nova Scotia. Dalhousie University, 1912. 6-8-66.

Dunsworth, Marcus Meyer. Edmonton. Northwestern University, 1917. 13-8-66.

Gervais, Henry. 71. Westmount, P. Quebec. Université de Montréal, 1926. 19-7-66.

Harrington, Paul. 68. Toronto. Royal College of Dental Surgeons of Ontario, 1922. Associate member CDA. 29-8-66.

Foundations of Anesthesiology

Albert Faulconer, Jr. and T. E. Keys. Springfield, Illinois, Charles C. Thomas, 1965. (Available from Ryerson Press, Toronto) 2 volumes. 1337 p. Illus. \$46.25

This first edition, in two volumes, is an excellent reference text for anyone interested in anaesthesiology. It traces the history of anaesthesia from its origination to the present and, in so doing, correlates past concepts to those known today.

The authors have organized over 150 papers under eight general topics — respiratory physiology, inhalation anaesthesia, rectal anaesthesia, conduction anaesthesia, intravenous anaesthesia, accessory agents and techniques, depths of anaesthesia and theories of narcosis. The material is completely indexed to facilitate its use as a reference text.

The major criticism is that, even though the book was published in 1965, many anaesthetic agents and concepts which have been in use for several years are not included. Perhaps it takes so many years to compile a book of this nature that it is impossible to have the contents up to date.

I also found some of the reading laborious, but, by and large, even a layman would find pleasure in its contents.

In summary, this new book has little value from a clinical teaching standpoint, but might almost be classified as a reference library for general information on the subject of anaesthesiology.

R. S. Locke

The Dentition of Man. An Atlas of Tooth Morphology

Charles Schroeter. Seattle and London, University of Washington Press, 1966. 118 p. Illus. \$5.50

This *Atlas of Tooth Morphology* is intended to provide the dental practitioner, teacher and student with authentic material for the study of dental anatomy.

It will serve as a reliable addition to any of the existing standard texts on dental morphology because its primary purpose is to illustrate the original tooth form.

Detailed description of the specimens is not included as the author feels that the illustrations will stand on their own merit; and they really do! The anatomical details of the teeth obtained by stereoscopy (three-dimensional vision obtained when two photographs are taken, each from a different camera angle, to allow depth perception when the right eye sees the right picture and the left eye sees the left picture simultaneously) and the reproduction of proper depth on the occlusal surfaces speak for themselves.

The panels dealing with the permanent maxillary and mandibular teeth and the inclusion of panels on the deciduous teeth are most welcome. As a teacher, however, I feel that the author should not have limited himself to the description of the landmarks on the occlusal surface of a maxillary right first bicuspid only. Panels dealing with the convex and concave features on the occlusal surface and a description of the significant areas of every tooth would have been of great help in the understanding of the occlusion.

The approach taken in chapter 3 on collective tooth morphology can be highly commended. Based on morphological characteristics common to all teeth or certain groups of teeth, this approach makes more sense than the old one tooth at a time method.

Descriptive dental anatomy in chapter 4 contains a description of maxillary right and left central incisors only. The author points out that these accounts are only a guide for a systematic survey. Personally, I regret that all the teeth were not included. The reader, however, can make his own observations and form his own concepts in descriptive tooth anatomy from the excellent illustrations.

This book is recommended to anybody interested in this subject because the information to be gained may contribute to further advancement of tooth morphology and thus to better dental care.

O. P. Sykora.

The library of the Canadian Dental Association is open daily from 9.00 a.m. to 5.00 p.m. except Saturdays and Sundays. Books and periodicals may be borrowed by members by writing to the Librarian, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario. Books are loaned under the following terms: (1) The borrowed book may be retained for a two week period from the date received by the borrower. (2) Renewal for a further two week period will be permitted provided the book is not requested by another member. (3) Postage on books is paid by the Association. New books are listed periodically in the Journal.

The Canadian Dental Association also maintains a selection of educational films which are available on loan. Films are shipped prepaid and must be returned with shipping charges prepaid by the borrower. Members should specify the date on which a film is to be used and return the film immediately after use.

The Canadian Film Institute, 1762 Carling Avenue, Ottawa 13, Ontario, also has a selection of films on dental public health. Borrowers should make their requests for these films as far as possible in advance, indicating the proposed date of showing and giving second and third alternative showing dates. There is a service charge for these films. The Canadian Film Institute will ship the films express collect and the borrower must return them express prepaid. The Institute bills the borrower for the service charge.

A student recruitment film, "Challenge of Dentistry," may be borrowed directly from Modern Talking Picture Service, 1875 Leslie Street, Don Mills, Ontario.

■

La bibliothèque de l'Association dentaire canadienne est ouverte tous les jours, excepté le samedi et le dimanche de 9h.00 a.m. à 5h.00 p.m. à tous les membres et à toute autre personne intéressée. Les membres peuvent emprunter des volumes et des revues dentaires en écrivant à la Bibliothèque de l'Association dentaire canadienne, 234 rue St-Georges, Toronto 5, Ontario. Voici les conditions d'emprunt: (1) Les volumes peuvent être empruntés pour une période de quinze jours, à compter de la date de réception. (2) Un renouvellement de deux semaines est accordé, pourvu que dans l'intervalle, aucune demande n'ait été

faite pour les mêmes volumes. (3) L'Association paie les frais de port. De nouveaux volumes seront à votre disposition au fur et à mesure qu'ils seront publiés. La liste de ces volumes paraît dans le Journal aussi souvent que possible.

L'Association possède aussi un choix de films disponibles sur demande. Les films sont expédiés francs de port mais les frais de retour doivent être payés par l'emprunteur. Les membres doivent spécifier la date à laquelle un film sera utilisé et le retourner immédiatement après sa démonstration.

Le Canadian Film Institute, 1762 avenue Carling, Ottawa 13, Ontario, possède de même un bon choix de films sur l'hygiène dentaire publique. Ceux qui désirent emprunter ces films sont priés de faire leurs demandes aussi à l'avance que possible, indiquant la date proposée pour leurs démonstrations et donnant une seconde et troisième dates possibles. Des frais de service sont comptés pour ces films. Le Canadian Film Institute expédiera les films non affranchis et l'emprunteur devra les retourner par express pré-payé.

Un film sur le recrutement d'étudiants, intitulé "Challenge of Dentistry," peut être emprunté directement du Modern Talking Picture Service, 1875 rue Leslie, Don Mills, Ontario.

Additions • Acquisitions

AHLGREN, J. Mechanism of mastication; a quantitative cinematographic and electromyographic study of masticatory movement in children, with special reference to occlusion of the teeth. (*Acta Odontologica Scandinavica*, Vol. 24, Suppl. 44, 1966.) 109 p. illus.

AMERICAN ACADEMY OF ORAL ROENTGENOLOGY. Glossary of terms used in dental radiology. Chapel Hill, University of North Carolina, 1964. 64 p.

AMERICAN DENTAL ASSOCIATION. COUNCIL ON DENTAL THERAPEUTICS. Accepted dental remedies, 1966. Ed. 31. Chicago, 1965, 275 p. \$3.00

ANDERSON, W. A. D. Pathology, in two volumes. Ed. 5. St. Louis, Mosby, 1966. 1439 p. + Indices. illus. \$22.70

- ARCHER, W. H. Oral surgery; a step-by-step atlas of operative technique. Philadelphia, Saunders, 1966. 1157 p. illus. \$25.40
- CAMPBELL, R. H. The dental hygienist in private practice. Dubuque, Iowa, Wm. C. Brown Co. 1964. 130 p. \$4.95
- CASEY, G. J. Hospital dental service. (Practical Dental Monographs, Nov.-Dec. 1965.) 38 p. illus.
- COPPOLINO, C. A. Practice of hypnosis in anesthesiology. New York, Grune & Stratton, 1965. 204 p. \$7.25
- DENTAL CLINICS OF NORTH AMERICA, March, 1966. Symposium on controversies in dentistry. Philadelphia, Saunders, 1966. 238 p. illus.
- DJINJIAN, A. and BARSAMIAN, V. Manuel de l'infirmiere assistante en odontostomatologie. Paris, Librarie Maloine, 1965. 241 p.
- FAULCONER, A. and KEYS, T. E. Foundations of anesthesiology, in two volumes. Springfield, C. C. Thomas, 1965. 1337 p. + Indices. illus. \$46.25
- GOODMAN, L. S. and GILMAN, A. The pharmacological basis of therapeutics. Ed. 3. New York, The Macmillan Co., 1965. 1785 p. \$24.75
- HOROWITZ, S. L. and HIXON, E. H. The nature of orthodontic diagnosis. St. Louis, Mosby, 1966. 393 p. illus. \$21.10
- KLOCK, J. H. and TOM, A. Nitrous oxide amnalgnesia; a soft general anesthesia for ambulatory patients. North Conway, N. H., 1965. 102 p. illus. \$6.00
- LERNER, M. and ANDERSON, O. W. Health progress in the United States: 1900-1960. A report of Health Information Foundation. Chicago, University of Chicago Press, 1963. 354 p. \$6.50
- MCDONALD, E. T. Articulation testing and treatment; a sensory-motor approach. Pittsburgh, Stanwix House, Inc., 1964. 189 p. \$8.25
- MOORE, J. R. Principles of oral surgery. Pergamon Series on Dentistry. Vol. 3, 1965. 243 p. illus. \$8.25
- ORGANIZATION PANAMERICANA DE LA SALUD. Segundo Seminario Latinoamericano Sobre la Ensenanza de la Odontologia. Mexico, 18-24 de octubre de 1964. 390 p. illus.
- RAMFJORD, S. P. and ASH, M. M. Jr. Occlusion. Philadelphia, Saunders, 1966. 396 p. illus. \$16.20
- ROCKERT, H. A quantitative x-ray microscopical study of calcium in the cementum of teeth. (Acta Odontologica Scandinavica, Vol. 16, Suppl. 25, 1958.) 68 p. illus.
- RYAN, K. J. Group dental care. (Practical Dental Monographs, March-April, 1966.) 38 p.
- SALZMANN, J. A. Practice of Orthodontics. A two-volume text. Montreal, Lippincott, 1966. 1074 p. illus. \$42.00
- SANDELL, P. Teaching dental health to elementary school children. Washington, National Education Association of United States. 1956. 33 p. illus. .75
- SARNER, H. The business management of dental practice. Philadelphia, Saunders, 1966. 222 p. \$8.10
- SHANKLAND, W. M. Missouri dentistry: the biography of a profession. Centennial Celebration, 1965. Missouri Dental Association, St. Louis, Mo. 441 p.
- SHAPIRO, M. The scientific bases in dentistry. Philadelphia, Saunders, 1966. 334 p. illus. \$10.80
- STERN, R. G. Teeth, dying and other matters. New York, Harper & Row, 1964. 285 p. \$6.10
- US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. Psychology in dentistry; selected references and abstracts. PHS Pub. No. 929. 1962. 202 p. Mimeo.
- US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. NIDR Reports on findings in adults by age, race and sex. US 1960-1962. PHS No. 1000-Series 11-No. 7. 35 p.
- US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. NIDR Reports on dental research. PHS No. 1244, 1965. 31 p. illus.
- WALLENIUS, K. Experimental oral cancer in the rat; with special reference to the influence of saliva. (Acta Pathologica et Microbiologica Scandinavica, Suppl. 180, 1966.) 91 p. illus.
- WEINBERGER, B. W. Dental bibliography; a subject index to the literature of dental science and art as found in the Libraries of The New York Academy of Medicine. Ed. 2. 1929. 183 p. \$1.00. Part II—Dental bibliography, 1932. 262 p. \$1.00. Published under the auspices of The First District Dental Society, State of New York.
- YEAR BOOK OF DENTISTRY 1965-1966. Chicago, Year Book Medical Publishers. 464 p. illus. \$8.80

The word coining game

For purposes of communication, once wrote Professor H. H. Stones,¹ a word must have the same meaning for all those who use it. A man who knows very well what is meant when he uses a particular word may falsely assume that others will automatically accept and understand that meaning. Not so! Not only can words have different meanings, or different shades of the same meaning, but discordant interpretations can be exploited for ulterior motives.

Take, for example, the term *denturist*—a word of spurious parentage, invented as a label by and for those who independently of the dental profession make and furnish dentures directly for the public. The word is confusing, undesirable and etymologically unsound. It is confusing because it implies a status, skill and knowledge in prosthodontics higher than, or equal to, that possessed by dentists. It is undesirable because its meaning is ambiguous, misleading and a cause of misunderstanding. It is unsound because it is a grotesque corruption of the word *denture*—an example of jargon of the worst kind. After all, the craftsman who painstakingly fashions a piano is no pianist. Why then should the manufacturer of dentures be stamped a *denturist*?

For many years it has been customary to call anyone who fabricates oral prosthetic devices a dental technician. Dental technology is an honourable craft. Those who follow it conscientiously have earned the respect and admiration of the dental profession. Dental technology thus has an established connotation. The term *dental technician* signifies a handicraftsman possessing certain skills in a particular field. It makes no claim for abilities which the owner in fact does not possess. It is a simple, honest, straightforward appellation and one that is recognized by statute.

Latterly, a new designation—that of *dental mechanic*—has gained acceptance in certain provinces of Canada. This term identifies those who, independently of the dental profession, make and furnish dentures directly for the public. It is these dental mechanics who coined the term *denturist* and who press for its legal recognition. But if the term *dental mechanic* possesses any virtue, surely the word *denturist* has none at all. Most lexicographers define the mechanic as a type of handicraftsman, one who makes or uses machinery—no more and no less. No exalted ideas of fancy here that require to be clothed in some strange vesture of phrase. A *denturist* may confuse the innocent public but a *dental mechanic* cannot effectively pose as that which he is not; he cannot masquerade as a dentist.

It is precisely the opportunity for creating uncertainty and misunderstanding in the public mind that prompted the legislators of British Columbia and

Alberta to reject the term denturist. The same considerations persuaded the Special Committee on Dental Services of the Manitoba legislature to adopt an identical stand.² The intention of this, which is surely to prevent the dental mechanic from styling himself as a practitioner of dentistry, deserves the support of every dentist.

Language, like life itself, is continually changing in response to environment. This is as it should be and no one would want to stifle the process. But some stability is necessary to give effective continuity to this evolutionary flux. Any haphazard perversion of words, on the other hand, simply debases the art of communication.

1. Standardization of dental terminology. *Internat. D. J.* 14:359, 1964. Editorial.

2. Province of Manitoba. Final report of the Special Committee of the Legislative Assembly of Manitoba on the Provision of Dental Services by Dental Technicians and Denturists. Winnipeg, Manitoba, January 1966.

L'Association dentaire canadienne, organisme de tous les dentistes du pays

Le fonctionnement et la structure de l'Association dentaire canadienne ont suscité récemment quelques signes d'intérêt et d'inquiétude. Les marques d'intérêt envers l'organisme national sont toujours bien accueillies et celles de préoccupation ne sont jamais ignorées. Les motifs d'inquiétude dans ce cas précis concernaient les conditions dans lesquelles l'Association reçoit son revenu et la manière dont est constitué son Bureau des Gouverneurs. Il convient donc d'examiner les faits de peur que les dentistes ne concluent que l'Association prélève arbitrairement une partie de leurs droits de licence en ne leur laissant qu'une voix limitée ou même aucune participation à la conduite de ses affaires.

L'Association dentaire canadienne est formée de 10 membres corporatifs. Neuf d'entre eux sont les corporations statutaires provinciales, de la Colombie britannique à la Nouvelle-Ecosse, le dixième est la Société dentaire de Terre-Neuve. De plus, les dentistes enregistrés qui se trouvent dans les juridictions respectives des membres corporatifs sont membres individuels de l'Association, à moins qu'ils n'y voient quelque inconvénient et qu'ils s'en retirent.

Le revenu de l'Association provient de contributions annuelles accordées par les membres corporatifs. Le montant de ces contributions est déterminé par les membres corporatifs eux-mêmes.

Le Conseil des Gouverneurs se compose de représentants des divers membres corporatifs. Chaque membre corporatif a droit à un représentant au moins, plus un autre représentant pour chaque groupe additionnel de 500 membres ou la majeure partie de ce chiffre. Actuellement quatre provinces élisent leurs représentants et les six autres les désignent.

L'Association dentaire canadienne est donc par essence le produit des membres corporatifs qui, à leur tour, sont composés de tous les dentistes enregistrés. Les membres corporatifs soutiennent financièrement l'Association de la même manière dont les états membres souverains soutiennent l'Organisation

des Nations Unies. Chaque membre corporatif détermine le montant de sa contribution à l'Association dentaire canadienne. Pour fixer cette somme, on prend évidemment connaissance du programme complet de l'Association, des besoins de son budget et des pratiques budgétaires des autres membres corporatifs. Les considérations importantes sont (1) que la contribution est une somme globale déterminée par le membre corporatif et (2) que le montant de la contribution est variable et peut être modifié par le membre corporatif. En fait un membre corporatif peut cesser complètement de verser sa contribution et se retirer de l'Association pourvu qu'il prévienne de son intention un an à l'avance.

Les avantages dont bénéficie le membre individuel sont entièrement gratuits. Si un dentiste décide de se retirer de l'Association il cesse seulement d'en recevoir les avantages. Mais cet acte ne change en rien ses droits d'enregistrement. Le statut de membre individuel et le soutien financier de l'Association dentaire canadienne se définissent donc comme deux entités claires et distinctes.

Les activités de l'Association dentaire canadienne nécessitent clairement le consentement et l'appui de la majorité de ses membres individuels. En effet, si les dirigeants de l'Association s'engageaient délibérément dans une voie contraire à la volonté et à l'opinion expresse de la majorité des membres, ce serait sans aucun doute la dernière action qu'ils auraient accomplie en cette qualité. On peut facilement s'imaginer que les vives réactions des membres individuels indiqués contraindraient les conseils d'administration de leurs membres corporatifs à prendre des mesures appropriées qui pourraient aller jusqu'au retrait du soutien financier et au retrait de l'Association.

De plus, chaque membre de l'Association dentaire canadienne a le droit de faire connaître son point de vue personnel au Conseil des Gouverneurs. C'est précisément en vue de maintenir ce contact direct que les dentistes sont régulièrement priés d'assister à la réunion annuelle du Conseil, où ils peuvent exercer leur influence sur l'élaboration de la politique de l'Association. Il est bien dommage que si peu de dentistes profitent de cet avantage.

Ceci ne veut pas dire que les relations actuelles entre les dentistes, les membres corporatifs et l'Association constituent le seul ou le meilleur moyen de former un organisme national fort. Sur l'initiative d'un ancien président de l'Association, le Conseil des Gouverneurs suggéra en 1960 que les membres corporatifs revisent les procédés concernant le choix des membres du Conseil, à la suite de quoi une province substitua la méthode du vote à celle de la nomination. Mais c'est à peu près tout ce que l'Association dentaire canadienne peut faire car elle ne peut pas dicter et ne dicte pas aux membres corporatifs ce qu'ils doivent faire à propos de telle ou telle question. Il appartient à chaque membre corporatif de déterminer la façon dont il choisit ses membres du Conseil, et toute action à ce sujet dépasse la juridiction de l'Association dentaire canadienne. La responsabilité finale appartient donc clairement à chaque dentiste en particulier.

Les membres individuels qui ne sont pas satisfaits des dispositions actuelles devraient confier leur grief au conseil d'administration du membre corporatif dans la juridiction duquel ils exercent. Le membre corporatif ne manquera pas de répondre si un nombre suffisant de dentistes agissent de concert. Et si la majorité des membres corporatifs désirent un changement, l'organisme national sera modifié.

Cependant, étant donné la structure corporative de l'Association dentaire

canadienne, il faut garder deux éléments présents à l'esprit lorsque l'on examine les mérites respectifs de la représentation par le vote et de la représentation par nomination. D'abord, un vote pourrait faire élire un représentant au Conseil des Gouverneurs de l'ADC qui ne soit ni membre du conseil d'administration de son membre corporatif ni familier avec les politiques et les programmes de cet organisme-là. Ensuite, ce représentant pourrait avoir à prendre des décisions relatives à la dépense de sommes d'argent qui ne seraient pas sous son contrôle mais sous celui du conseil d'administration du membre corporatif. Nous ne laissons pas croire que ces problèmes soient insolubles. Aucune de ces difficultés n'est insurmontable. La nature statutaire des membres corporatifs peut cependant créer certains obstacles. Nous exposons donc ces faits afin de faire remarquer quelques-uns des problèmes qu'il faut affronter.

De toute façon des dentistes du Canada sont libres d'effectuer des changements par les moyens constitutionnels si, à leur avis, l'organisme national ne reflète pas fidèlement leurs aspirations. Il est bon de souligner que tout dentiste peut employer à cette fin autant d'influence qu'il le désire.

Traduit du Journal de l'Association dentaire canadienne Vol. 28, septembre 1962, page 588.

letters • courrier

Children's Dental Plan

To the Editor:

I was most interested in reading the article, "Planning for dental health services in Canada," by Dr. A. M. Hunt in the August issue of the Journal. From the various reports and studies I have seen and from Dr. Hunt's comments on the New Zealand dental nurse plan it would seem that this plan has been somewhat successful from certain points of view.

However, it would appear to me that two very important points are being consistently missed in these studies. The first point is that once people are off of this plan many of them seem to neglect their teeth very badly and are soon in a poor state of dental health. It is obvious that the NZ dental nurse is missing the boat when it comes to teaching good preventive practices to these people. In Canada, where we are using completely trained dentists, we do not get this dramatic deterioration in dental health when these people become adolescents and young adults. The dental disease rate of

the young men going into the army in New Zealand during the Second World War was amongst the highest of any armed force.

Ignoring the arguments that these auxiliaries might be useful here because they are able to produce what is said to be reasonable dental care, I think there is an exceedingly strong argument based on simple economics against using this type of personnel. Briefly, the argument I am suggesting is based on the following points: The report by Dr. R. G. Ellis (January 6, 1951) has shown that the average time of practice of the NZ dental nurse is 7.88 years including two years of training—leaving 5.88 years of productive practice life. The average dentist in Canada trains for five years and then practises dentistry in excess of 40-45 years. This produces a ratio of 40:5 or eight years of practice for every year of training a dentist as compared to a ratio of 5.88:2 or 2.94 years of practice for every year of training an NZ dental nurse. The economics in training only dentists are obvious when you compare the 2.94 years of an NZ dental nurse to the eight years or more of a dentist in productive dentistry. The percentage of NZ dental nurses who return to this work after being married for 15 or 20 years is not very significant. Furthermore, I am told that it is more costly to train the NZ dental nurse because of the nature of her training.

The length of productive life is not the whole argument. I think the most directly related argument is that dentists with 10-15-20 years' or more standing, besides having more training, obviously have much

more experience (based on a better background as well) and therefore have far more operative judgement, ability, and simple speed to place an amalgam restoration or anything else than would have an NZ dental nurse who only has up to a maximum of 5.88 years of experience (based on much less background) before she retires. Further, the dentist because of his broader base of training also is able to recognize and handle other oral and dental situations during any examination or period of treatment.

While it would appear that the dental profession needs to increase its productivity as a whole to meet treatment demands, I cannot see how the NZ dental nurse approach would do this and maintain the standards we are used to. Perhaps even more important, from the politician's point of view, I do not see how the idea can be justified economically.

It has always puzzled me that none of the studies I have ever seen on the NZ dental nurse have gone into a cost analysis relative to the productive hours of these auxiliaries or a comparison between what they can do and what the dental profession is able to do in terms of cost, time, production, and actual total treatment. Surely, the Canadian dental profession can formulate a plan which will provide Canadian children with the care they deserve by a reasonable expansion of our present dental educational facilities for dentists and auxiliaries of the types we are presently using. Careful and unbiased study will show that such a plan, using dentists, will produce quality care in the quantities needed considerably more economically than would any plan using an NZ dental nurse type of auxiliary.

There are many other strong arguments of the type advanced in this letter which could be made. I hope the ones I have given will provide some food for thought for CDA members.

R. L. Rasmussen, DDS,
1812-4th St. S.W., Calgary, Alta.

To the Editor:

Dr. Hunt is to be congratulated upon coming closer than many to a viable plan for improving dental health in Canada (J. Canad. D.A. 32:464, August 1966).

There is no doubt that increasing demands for dental services are threatening to swamp the profession and that politicians are proposing some rather radical solutions.

However, in our desire to achieve quick solutions to a complex problem, we can contribute to the downfall of freedom and independence. These are hackneyed words which have been grossly misused by the political Right, but they originally meant a great deal.

It has been through freedom and independence that we have gained much of our progress. At the left end of the political spectrum all problems are social; all problems are attacked on a massive, heavy-handed and monolithic scale, and the resulting errors can also be gigantic.

Where there is no flexibility of action, where there is no opportunity for individuals to express their own peculiar genius in the solution of their own problems, you will find stagnation and suppression. When changes finally come, they are usually at the price of political purging and more suppression.

Dr. Hunt barely mentions the fact that there are many Canadians with good dental health. The presence within our population of a sizable group of people who enjoy superior dental health is not altogether due to the fact of their electing superior personal dental services. It is also due in many cases to their following sound general health principles in their personal lives — including family stability, good prenatal and postnatal care, and excellent nutrition with a low intake of fermentable sugars. Should these people be required by taxation to pay for restorative dental services for the others? Or should the health principles they follow be taught to everyone?

In supporting a centralized plan, Dr. Hunt states that, "In addition, the children who are unfortunate enough to have poor or indifferent parents will have the opportunity to enjoy good dental health." One wonders whether these unfortunate children who are given this opportunity, and the majority of the others who are carried along on the plan willy-nilly, will themselves grow up to be responsible parents; or will they have learned to demand of bureaucracy more and more "opportunities to enjoy?"

The opportunity of choice by the individual, although not always present in optimum amounts, has been one of the main-springs of our western progress. The freedom to have mediocre dental health, if one wishes, is a natural corollary of the freedom to choose superior dental health. Yet, the modern bureaucrat seems to say that no one is to be allowed to have mediocre dental health. Witness the excerpt on page 471 of the same Journal issue wherein Dr. B. A. McFarlane, a sociologist, states that a certain amount of coercion may be required to have parents look after the dental health of their offspring, even if it were entirely 'free!' Dr. McFarlane further suggests that middle class standards may become, by government edict, the standard for everyone, whether they like it or not!

The Canadian citizenry, hopefully, still has some remaining sense of independence. Building upon this hope, surely we dentists can find ways to provide greatly increased dental services within the present private practice system, and offer a clear choice for our patients, involving their decisions as individuals.

We need to consider seriously how we can better teach dental health principles and, at the same time, greatly increase our output of restorative services.

It is obvious that we must concentrate on the training of auxiliaries, but should they not be considered full members of the dental team?

Cannot dental services be subdivided into logical components and team members trained to become proficient in these partial services, the dentist being responsible for the complete and combined services to the patient?

Have we reached the zenith, accompanied only by laboratory technicians, assistants and a handful of hygienists? The medical profession has built up a team of nurses of many kinds, physiotherapists, pharmacists, occupational therapists, radiological technicians, radiation therapists, laboratory technicians and dietitians, all presumably to the benefit of the patient. At one time, on this continent, physicians rolled their own pills in their own little pharmacies. (Some dental acts still allow only dentists to aim an x-ray tube, I understand.)

The unprecedented demand for dentistry has been stimulated, at least partly, by advances made by individual dentists in their science and in their art. Surely we can continue to make progress without allowing bureaucracy to apply its solution.

D. C. T. Bullen, DMD, DDPH,
209 Church St., Comox, BC

No Virtue in Jargon

To the Editor:

I wish to protest over the growing use of jargon in the conversation between dentists and their patients. To me this is a de-humanizing experience which threatens to transform us from professionals into tradesmen.

Take the patient who complains, "Doc, my filling fell out!" or ponder the unknown telephone enquirer who asks, "How much does a filling cost?" Both convey their preoccupation with the value of dental merchandise; neither reveals any comprehension of the true worth of a health service.

Day by day we are pressed to render more of the best possible treatment in a shorter space of time. There is always someone awaiting our care. Time is money, efficiency is the dentist's watchword, and so it becomes all too easy to drift into an assembly line habit. One side effect of this is the infiltration of jargon into our vocabulary. This, in turn, introduces ambiguity in the interpretation of examination findings and proposed treatment furnished to patients. Often, it is simply a matter of selecting the proper word or phrase to convey more precisely the nature of the service advocated or rendered.

Many patients equate 'examination' of the mouth with an inventory of necessary repairs. 'Evaluation,' on the other hand, implies the inclusion of a history and a prognosis as well as recognition of consequences affecting the body as a whole.

By the same token, recitation of the number of 'cavities' is less meaningful than the designation 'decaying' or 'infected' teeth. Concomitant treatment is then directed at elimination of the infective process and preparation of the tooth to receive an inert restorative material. Thus, we do not simply "put in a filling;" we "restore teeth to function."

Words which I now rarely use, if ever, include prophylaxis, denture, crown and extraction. These words hold little meaning for most patients. Besides, my patients and I converse about services, not products.

F. Katz, DDS,
1541 W. Broadway, Vancouver 8, BC.

Control of Radiation Hazards

To the Editor:

After having read Dr. Stoneman's article on radiation dangers in the June issue of the Journal some questions have arisen in my mind. I recall that when the hazards of x-rays were discussed in undergraduate lectures the instructors mentioned, among other things, the cumulative effects on the gonads and the possibility of future undesirable recessive genetic effects. This point was brought out again in Dr. Stoneman's article and from both sources I gain the impression that male and female may be affected in the same manner. I query this impression because (1) females are born with a given number of ova of which one is shed periodically and there are no replacements, and (2) males on the other hand have an indefinite supply of spermatozoa of which the turnover is quite high and the number produced during a lifetime is astronomical.

Since this is the case, it would seem that females are more susceptible as far as gonadal radiation hazards are concerned. They have no turnover in the number of ova possessed and it would seem that radiation would be cumulative and harmful to the static supply of ova.

If males are just as susceptible, then what part of the sex organs is affected? Since spermatozoa bear the genetic material, it seems logical to conclude that they would be affected, but, as mentioned earlier, their turnover rate is high. If the numbers are constantly changing in the mature male, then where else could the effects be cumulative?

B. Williams, DDS,
Brant County Health Unit,
Brantford, Ont.

Drs. H. G. Poyton and D. W. Stoneman reply as follows:

To the Editor:

Radiation to the gonads of either sex may cause a mutation of one of the genes, that is, a permanent transmissible change in the characteristics which may be passed to offspring from a parent. Dr. Williams uses the phrase 'future undesirable recessive genetic effects.' He is correct in that effects which are seen in the distant future are brought about by damage to recessive genes. But damage can also be caused to dominant genes. This would be manifest in the next generations and would not have to await chance marriage of two individuals with the same recessive genes. Thus paired, the effect becomes clinically apparent in the offspring.

The main theme of Dr. Williams's letter deals with the relative susceptibility of male and female to genetic damage. Both are equally susceptible, but it should be mentioned that the ovaries, situated deep in the abdominal cavity, often receive a smaller dose than the male gonads during a radiographic examination.

In the case of the female, damage can occur to the oogonia (the primordial cells which give rise ultimately to the oocytes) during the first three months of intra-uterine life. Thereafter it is the oocytes which may be damaged. These cells remain as oocytes until just before shedding when they become ova. Similarly in the male, the spermatogonia, spermatocytes, and the mature spermatozoa can be damaged.

It is perhaps pertinent to mention that the phrase 'cumulative effect' is interpreted in different ways. It is used most commonly in the way in which Dr. Williams uses it. That is, the effects are cumulative in the individual. This is made more clear if we compare the effects of radiation on the skin and on the gonads. In the case of the former, in most circumstances, there is a power of recovery. Therefore several small doses at intervals are not usually as harmful as one large dose, even though the total radiation received may be the same. In the case of the gonads the power of recovery between exposures is extremely small; therefore the harmful effects accumulate with each exposure. The other interpretation of this phrase relates to the population as a whole. Every mutation adds to it; consequently, later generations may show increased evidence of the presence of mutant genes. In this way the term 'cumulative' may also be applied to the effect on a population as a whole. One likes to think that it is entrusted to each generation to pass on as small a number of unfavourable changes as possible.

H. G. Poyton, FDS, HDD,
D. W. Stoneman, DDS,
124 Edward St., Toronto 2, Ont.

Remuneration for Hospital Dentists

To the Editor:

In reply to the letter by Dr. Screech (August Journal, p. 458), comparing my salary of \$3,300 to that of a certain dental technician at \$5,000, I make the comments enumerated:

1. Oh, that I were a dental technician!
2. As a neophyte to a profession rather than a craft I feel my inadequacy almost to the extent of self-sacrifice, and wish only that the profession 'en masse' was more cognizant of its responsibilities whereby the glory of my martyrdom would be more apparent. 'Sic gloria mundi transiit. Ad nauseam!
3. Fortunately, my plight is shared by similarly impecunious medical interns with whom I am able to communicate.
4. With apologies to T. S. Eliot, could we postulate that 'He' in the following stanza from *The Waste Land* is the aforesaid technician and that 'Lil' is his wife:

He'll want to know what you done with
that money he gave you
To get yourself some teeth. He did, I
was there.
You have 'em all out Lil, and get a nice
set,
He said, I swear, I can't bear to look at
you.

5. Full circle?

A. G. Gilbert,
Resident dental intern,
Winnipeg General Hospital

Erratum

Dr. C. C. Bourne has drawn attention to an error in his article, "Oral Sepsis: William Hunter's Influence on Modern Dentistry," published in the August issue of the Journal. The article states that William Hunter delivered an address "on October 3, 1910 . . . at the opening of the Strathcona Medical Building of McGill University's Faculty of Medicine and its Department of Dentistry." The formal opening of the Strathcona Building had originally been planned for June 1910. The event was, however, postponed on account of the death of King Edward VII until June 5, 1911. William Hunter's address was actually delivered on the originally stated date at the opening of the session of the medical faculty.

Basic elements of dental office design

A. M. Gee, Islington, Ontario

A well-designed efficient dental office helps the dentist to make the most productive use of his time. This article reviews current trends in the planning of reception, administration and clinical areas of a dental practice. Also described are the basic arrangements for accessory services including make-ready area, dark room, recovery room, consultation and audiovisual area, x-ray facilities, and other utility services.

■

Grâce à un bureau bien planifié, le dentiste peut employer son temps d'une façon productive. L'auteur décrit la façon moderne de concevoir une salle d'attente, un bureau et des cliniques. Il décrit aussi les éléments secondaires d'un cabinet dentaire: chambre noire, salle de repos, salle de consultations, appareils audio-visuels, appareils de radiographie, etc.

The introduction of new techniques, new materials and more efficient instruments has made dentistry one of the most progressive health services of the past decade. Despite these advances, two out of three Canadian dentists are hard pressed

to meet the demand for their services.¹ A partial solution lies in making more productive use of the dentist's time. A well planned efficient office is an essential ingredient of this solution.

Since nearly all dental practices are conducted on an appointment basis, traffic flow in the office should be regulated according to a definite pattern. This requires office arrangements which will provide maximum use of time with a minimum of lost motion.

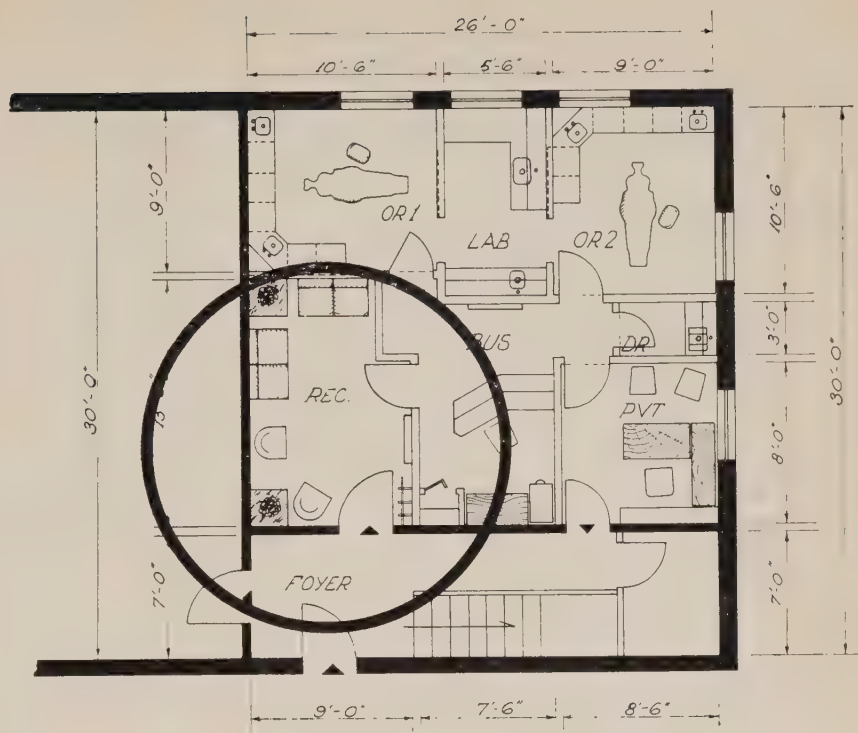
The basic design of a dental suite divides the office into three principal areas—the reception, administration and clinical areas. The administration area must necessarily be placed between the other two in order to maintain adequate control over both with a minimum of staff and movement.

RECEPTION ROOM

The reception room should be large enough to accommodate the total anticipated number of patients and parents for the selected appointment system and type of practice. A room size of 8½ x 10 feet (85 sq. ft.) could suffice for a single practitioner, but for an additional dentist or dental hygienist the room size should be increased to about 110 sq. ft.

The amount of continuous wall space is important because it determines the seat-

Reception area for a two-operating room suite occupying 598 sq. ft.



ing capacity of the room. Doors should be located toward one side of the room so as to make maximum use of the available wall space.

The reception room may be located away from a window, provided that some thought is given to ventilation or air conditioning. A suitable area for the hanging of coats must also be provided in the reception area.

There is a difference of opinion over the provision of a window or counter between the reception and administration areas. Patients generally do not wish to conduct personal business in the presence of strangers. Such a window can, however, help the receptionist observe incoming traffic. If such a device is used, it should be a sufficiently large-sized opening which can be closed when privacy is desired.

ADMINISTRATION AREA OR BUSINESS OFFICE

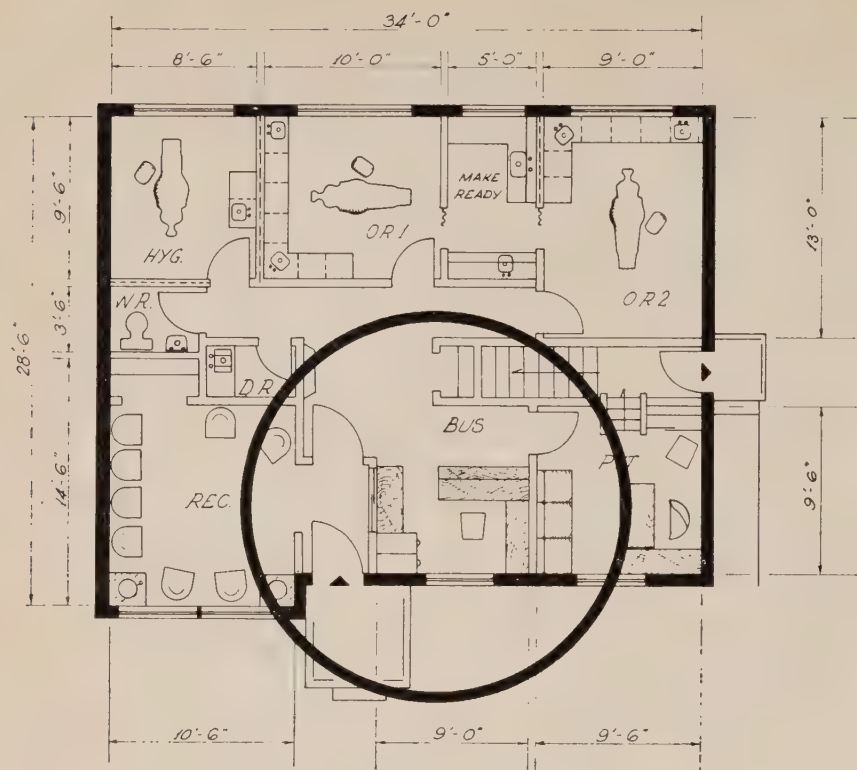
This area is used to control the office routine. Its primary requirements are desk space and filing facilities. Wall space must be made available to allow for these. Provision should also be made for cupboard storage space and a powder bar or mirror area for the convenience of female patients.

Sufficient space should be provided to permit an easy traffic flow to the various rooms. The desk should be of the solid front type, providing a counter area low enough for people of average height, yet high enough to prevent the viewing of paper work associated with a busy office. The size of this room should usually be about 7 x 8 feet although the particular arrangement may require or permit an even larger area. It is desirable to provide a separate exit from the administration area so that patients who feel embarrassed following surgical operations may depart without returning through the reception room.

OPERATING ROOMS

Most modern dentists operate from a seated position. There are many views on what constitutes the ideal seated position, but in all cases the patient is reclined to some degree from the almost vertical to the completely supine position. The problems which have been created have resulted in new solutions being provided through better equipment design.

Firstly, as the patient is further reclined, there is a need for the lounge-chair for proper patient comfort. This, of



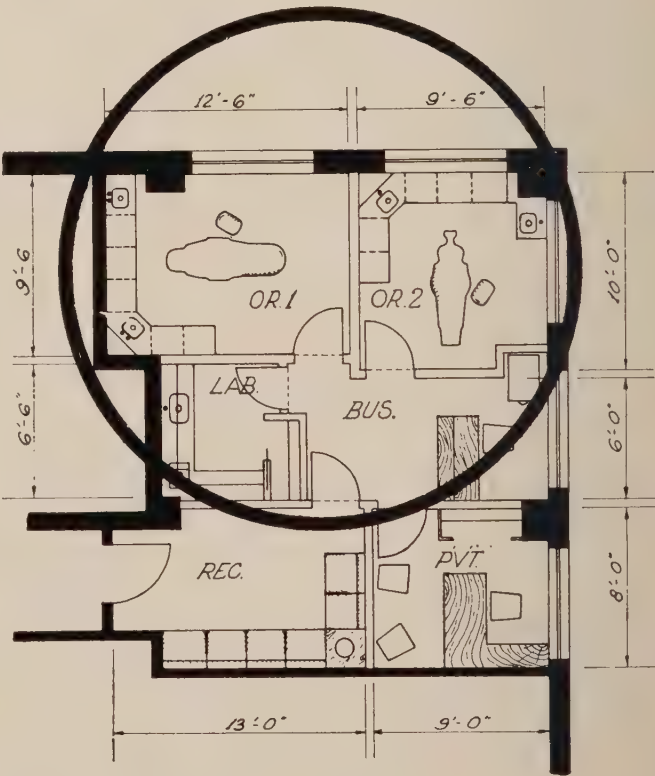
Administration area for a three-operating room suite occupying 906 sq. ft.

course, brings the benefit of a more relaxed and more co-operative patient. In reclined positions the mechanical evacuation of mouth fluids becomes important. This has resulted in the common use of high volume suction. Constant or frequent chairside assistance is also desirable under these circumstances and adequate space should be provided so that an assistant may perform her duties efficiently and in comfort.

With the patient reclined there is little need for a view out of the window. This consideration, together with the necessity for keeping the dentist away from traffic lanes, has resulted in new ideas about equipment positioning within the operating room. Since the reclined patient is further away from instrumentation fixed in the dental unit, and the nearly vertical patient is further away from instrumentation fixed in the cabinets, the individual dentist must determine for himself the best location of his instruments and facilities in order to obtain the flexibility he requires. In general, most dentists' operating techniques vary in an arc from

either the left or right hand side of the patient's head to a point directly behind. Therefore the most universally acceptable positioning would be in an opposing arc, forward of the patient's head.

The advent of the track-mounted chair has permitted the dentist to select a posi-



Clinical area for a two-operating room suite occupying 503 sq. ft.

tion of proximity to the instruments on the dental unit for any positioning of the patient from upright to completely supine. Since the dentist and his assistant are operating from a seated position, it has become practical to locate cabinets at a convenient height and closer to the chair so that various drawers can be reached from the seated position of either the dentist or the assistant with ease. Cabinets of varying design are now available in 20 inch modules. These may be combined with a common work surface, enabling the entire system to function as a unit. The cabinets can be designed to the dentist's preference, and may be rearranged at reasonable cost to adapt to any changes desired in later years.

A recent development emulates the hospital operating room where all equipment revolves about the patient who occupies a fixed location. When this system is adapted to dental practice, the fixed dental unit and fixed cabinets are replaced by mobile equipment, small mobile cabinets and prepared instrument trays.^{2,3}

The requirements of space behind the chair, the increased overall length of lounge type chairs and the space requirements for seated personnel necessitate larger operating rooms. Optimum room sizes for modern purposes are often

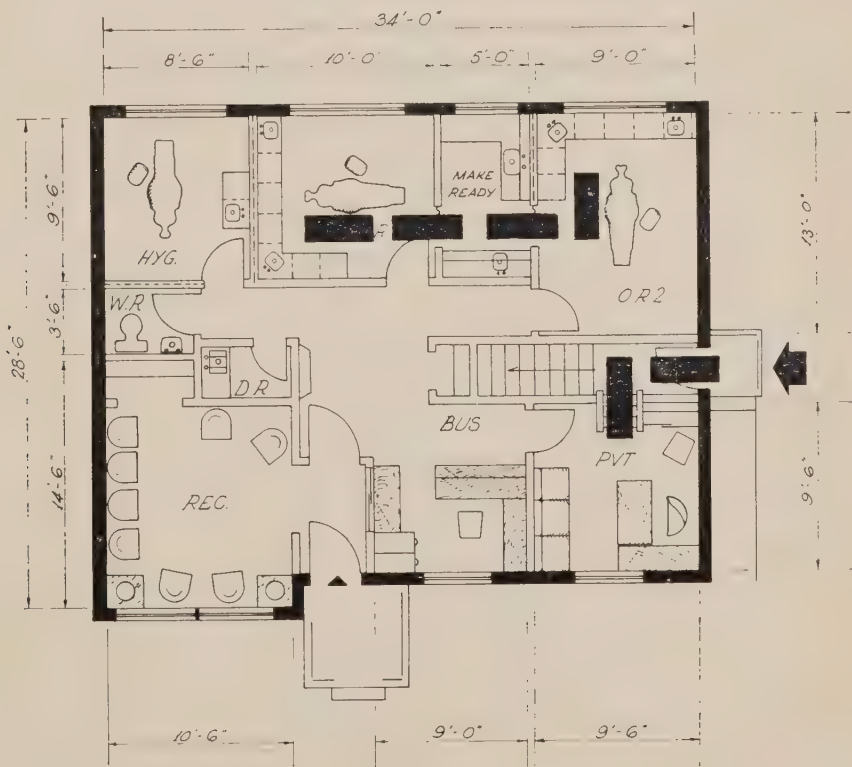
9 x 10½ feet and, in the opinion of some, even larger rooms of up to 10 x 12 feet are suitable.

When fixed cabinet areas are contemplated, windows should be relatively high up on the wall, and heating systems should be installed so as to provide minimum interference where wall space is required.

MAKE-READY AREA

Many offices combine central sterilizing and laboratory facilities in a 'make-ready' area. This area is usually devoted to the preparation of certain materials, the storage of supplies and a general wash-up space along with minimum facilities for the trimming and polishing of appliances and other such general duties. The make-ready room should have laminate surfaced counters and storage cupboards with inset sinks and appropriate electrical outlets for both the preparation area and the sterilizing area of the room. Compressed air and natural gas outlets are optional. A hole in the counter for waste disposal and a knee-hole area for use with a stool as at a work bench are desirable. If central sterilization fa-

Heavy interrupted lines in this diagram show how the dentist may approach the consultation room or move through the clinical area in complete privacy without encountering patients in the administration area.



cilities cannot be accommodated in the make-ready area, a separate location in proximity to the general business office may be required. About 5 feet of counter space is adequate for this purpose.

In practices where prepared instrument trays are used, a number of loaded, pre-sterilized trays are usually stored in a central cabinet or on shelves. When a tray is required, the assistant selects the appropriate one for a particular treatment and places it in the operating room.

DARK ROOM

A separate room of approximately 3 x 5 feet is ideal. For reasons of space economy, dark room facilities may have to be combined with the laboratory but this should be avoided wherever possible. The dark room should have a laminate surfaced cabinet into which a special x-ray processing tank is installed. Modern processing tanks have a wash section and removable inserts which obviate the necessity for a sink. But if a sink is also used, it should be of solid porcelain or of high quality stainless steel to resist the corrosive effect of developing solutions. There should, in addition, be provision for refuse disposal, electrical outlets, and a ventilating fan. A low rpm drying fan is also a useful adjunct for the quick drying of films. Some dentists also desire automatic temperature control of the water supply to the processing tank.

RECOVERY OR RETIRING ROOM

A practice where surgical operations are performed or general anaesthetics given requires one or more recovery rooms for the convenience and proper aftercare of patients. In some offices this space may be utilized as a change room for the staff, and in this case the addition of a small clothes cupboard would be an advantage. The room should be equipped with a box couch at least 6 feet long and 24 inches wide, and a shallow table with a small mirror and chair. A recovery room of average size measures about 7 x 4½ feet.

CONSULTATION AND AUDIOVISUAL AREA

Many dentists desire a separate room for the purpose of consultation. A long narrow counter or a low circular table, sufficient for the doctor and his patient, allows an examination of casts, radiographs and other media which are used to explain the nature of the required treatment to the patient. Such a room should be well appointed and harmoniously decorated.

Audiovisual equipment for patient education is rapidly becoming another indispensable instrument of dentistry. Since it is the receptionist who often shows the films, the facility should be near the reception area and easily accessible to it. Teutsch⁴ has described a combined consultation and audiovisual room which is designed and located so that the receptionist can control the projector from her own area. Lights for the room and the projection equipment are operated by two-way switches from either within the room or from the receptionist's area. Teutsch's plan takes into consideration the traffic flow of the office. The receptionist can route patients to the consultation-audiovisual room and thence to any operating room without interfering with the traffic pattern. Similarly, patients who are to see a film after they leave the operating room can be routed to this room without having to pass through the reception room or any operating areas. Further, the room is so located that the viewers are not disturbed by sound emanating from other points within the office. Likewise, sound from the consultation room does not disturb waiting patients, patients receiving treatment or office personnel.

LIGHTING

In order to balance the illumination and to spare the eyes from constant readjustment, a level of approximately 100 candlepower is usually recommended (although some dentists consider this inadequate). One practical arrangement would provide two four-bar 24 x 48 inch fluorescent fixtures installed 2 feet apart at a

point centered over the headrest of the chair and running in the same direction. One may also obtain fixtures which, by a combination of lens and bulb design, will duplicate the colour of daylight.

AIR CONDITIONING

A dental suite is essentially a complex of small spaces. Central air conditioning is therefore advantageous for the proper ventilation and cooling of such an office. Heating and air conditioning outlets must be located so that they will not interfere with cabinets or other equipment.

CENTRAL SUCTION

Central high volume suction and central surgical suction systems must be properly engineered for satisfactory performance. Motors for this facility are ideally accommodated in a basement or utility room area. Sometimes, through necessity, these motors may have to be placed in a dark room or beneath the counter in a make-ready area. In that case it is important to consider adequate ventilation and the access necessary to clean and maintain the equipment.

COMPRESSED AIR

In large professional buildings compressed air is often supplied centrally, but in many offices provision must be made for installation of an individual air compressor. Here again ventilation, sound-proofing and access are important. The air lines should be sufficiently large and be equipped with adequate filtering devices.

X-RAY APPARATUS

Central systems are available which allow the placement of control apparatus at a point remote from the patient in the operating room. In this way several x-ray tube heads may be operated from one central control point. There are spe-

cial requirements for reinforcement of walls in these areas and special inter-connecting wiring must be installed in advance at specific locations.

In many provinces it is a legal requirement that the dentist install protective lead shielding on or within the walls, floors and ceilings surrounding these facilities. Such protection consists of sheet lead which may be nailed to the framework prior to the installation of finished surfaces. In this connection it is interesting to note that certain masonry walls of sufficient thickness can take the place of lead sheeting.⁵

MUSIC SYSTEMS

A centrally installed music system offers many advantages and the masking of undesirable sound contributes to a relaxed atmosphere within the office. Installation is by the strategic placement of music speakers in the walls or ceiling of the operating rooms, the general business office and the reception room area. Some dentists prefer to connect the system to a tape recorder while others may use a commercial wired music source or FM program material.

CALL SYSTEM

Most offices have a simple double domestic chime connected to the entry door and a call button for the assistant in the operating room. Some dentists prefer a system of signal lights by which the doctor and the receptionist can communicate silently. Voice inter-com, though not widely employed, can be useful in larger multiple office layouts. It is also possible to have the telephone company supply and install equipment combined with the normal telephone facilities which will provide a private inter-com feature.

UTILITY SERVICE CONTROLS

Main water and gas valves should be in the suite together with the main electrical panel. The ideal position for this

panel would be beside the private exit door so that circuits may be disconnected and re-connected without groping in a dark office.

SOUND-PROOFING

This can be an important consideration because of the sounds developed by suction equipment and modern air driven instruments. Also to be considered is the footfall of traffic in business and hallway areas, all of which can detract from an otherwise comfortable and peaceful atmosphere. For this reason acoustical ceiling materials are usually employed and in the dental office the mechanical T-Bar ceiling offers many advantages which will be immediately apparent to the designer or mechanical consultant. Lead shielding within walls is a most satisfactory sound barrier and where a washroom is provided in a suite it may be advisable to sound-proof the perimeter walls of this room. Modern carpet materials are economical to maintain, attractive in appearance and above all contribute to the quiet functioning of a busy office.

DECOR

The advantage of professional assistance in the matter of interior decorating is generally appreciated today. There is such a wide range of wall and floor covering materials, furniture, and accent fea-

tures that it has become a highly specialized art. The best functionally designed dental office can suffer by comparison with a poorly designed office which is tastefully and harmoniously decorated.

OVERALL SPACE REQUIREMENTS

The increased facilities available make it necessary to analyse the individual dentist's needs carefully. These must then be related to the shape of space available. Generally speaking, a relatively square space offers the greatest efficiency in planning. For the individual dentist who wants three operating rooms and associated facilities, a space of 750 sq. ft. is commonly used. Many practitioners, however, who confine their practice to two operating rooms, will find that 650 sq. ft. provide an adequate space. When two or more dentists combine practices or share certain common facilities, this results in some economy of space, depending upon the facilities desired.

1. Canadian Dental Association. Bureau of Economic Research, 1963 survey of dental practice. 4. Incomes and expenses in relation to personnel, equipment and 'busyness' of practice. *J. Canad. D. A.* 32:174, 1966.
2. Hébert, Marcel and Kilpatrick, H. C. Two aspects of work simplification in operative dentistry. *J. Canad. D. A.* 30:421, 1964.
3. Hébert, Marcel. Prepared instrument trays. *J. Canad. D. A.* 31:556, 1965.
4. Teutsch, L. W. Planning for built-in patient education. *J. A. D. A.* 69:101, 1964.
5. Richards, A. G. Shielding requirements for dental installations. *J. A. D. A.* 64:788, 1962.

8 Reigate Road

Personal Incomes Rise • Personal income of Canadians increased 10.7 per cent in 1965 to an estimated total of \$38,902 million, compared to a rise of 6.7 per cent from 1963 to 1964. — Dominion Bureau of Statistics Weekly Bulletin, June 3, 1966.

Public health and the dental profession

H. K. Brown, DDS, DDPH,* D. J. Yeo, DDS, MPH, Vancouver, British Columbia and K. F. Pownall, DDS, Toronto, Ontario

The dental profession has become increasingly involved with the health of the community during the past 20 years. A new dimension has thus been added to the traditional relationship between the individual practitioner and his patient. Local, provincial and federal health agencies have incorporated dental administrative consultative units; schools of public health have opened their courses to dentists; dental schools have added public health to their curricula; the Canadian Dental Association and provincial dental organizations have formed public health committees. Despite these outward gestures many dental health programs are hampered by inadequate financial support and lack of personnel. Others suffer from a lack of authority accorded to the responsible public health dental officer. Moreover, dentists are not generally aware of the social and economic factors which influence the community as a social unit and thereby directly affect the dimensions of the dental health problem. Dental education, clinical practice and dental administration require an infusion of new ideas from basic public health sciences if the profession is not to dissipate its strength in piecemeal attempts at solving a community-wide health problem.

Le rôle de la profession dentaire dans la santé publique n'a cessé de s'accroître au cours des 20 dernières années. Une nouvelle dimension s'ajoute ainsi à la relation traditionnelle qui existe entre le praticien et son patient. Les organismes de santé locaux, provinciaux et fédéraux se sont adjoints une section administrative dentaire; les écoles d'hygiène publique ont ouvert leurs portes aux dentistes; les facultés dentaires ont ajouté à leurs programmes l'hygiène publique; l'Association dentaire canadienne et les organismes dentaires locaux ont constitué des comités d'hygiène publique. Mais en dépit de ces gestes officiels, de nombreux programmes d'hygiène dentaire manquent de moyens financiers et de personnel. D'autres piétinent parce que les responsables de l'hygiène dentaire ne jouissent pas d'une autorité suffisante. De plus, les dentistes ne se rendent pas compte des facteurs économiques et sociaux qui influent sur la société dans son ensemble et qui par la suite affectent les dimensions du problème de l'hygiène dentaire. La faculté dentaire, le cabinet du praticien et l'administration dentaire ont besoin de rechercher des idées neuves au sujet de l'hygiène publique, faute de quoi la profession dentaire risque de disperser ses efforts en essayant de résoudre pièce à pièce un problème de santé qui est à l'échelle de la nation.

"The relation of a profession to the society it serves is an ever-changing one, for, as society develops, it is inevitable that the profession must take account of that development if it is to continue to be effective."¹ The public health movement is a manifestation of this altered relationship. This movement has already produced striking changes in the organization, procedures and training of all the health professions. It promises many more for the future.

Knowledge and appreciation of the social and economic forces that generate and direct this movement are essential to the continued effectiveness of all the health professions. We believe that dentistry is no exception in this regard.

HISTORICAL PERSPECTIVE

At the end of World War II, dentistry was officially recognized as a health discipline whose responsibilities extend beyond the individual patient to the community. Accordingly, instruction was offered in the principles and philosophy of public health. These new educational programs were designed to alert the dentist to the responsibilities inherent in the newly acquired status of his profession.

Formal programs of instruction were first introduced in Canada in 1944. Initially, these took the form of postgraduate courses for dentists given in schools of public health. In this setting the dentist shared instruction with members of the other health professions. Later, and to a lesser extent, comparable instruction for undergraduates was introduced in the dental schools. The dentist learned how to detect, prevent and treat disease in communities or groups of people. This required a knowledge of the fundamentals of health education, preventive techniques, epidemiology, microbiology, nutrition, political science, economics, public administration, psychology, statistics and sociology. These disciplines extend the professional range of dentistry from the traditional dentist-patient relationship to the sphere of the dentist vis-à-vis the community. Only certain technical services are performed by dentists who have received postgraduate training

in public health. This follows the pattern established in other dental specialty areas for which additional training has been developed. Apart from such technical services, the general practitioner provides the bulk of direct service to the public. This practitioner can benefit by having specially trained dentists to whom he can turn for advice and with whom he can collaborate and consult. Nevertheless, in all dental matters, the general practitioner remains the key person upon whose skill, knowledge and judgement his patients, his community and the specialist depend.

The chief public health responsibility of every dentist is that of health education. This responsibility is inherent in the title 'doctor.' The profession's concern for preservation of health and prevention of disease entitles dentistry to be regarded as a health profession.

Since the end of World War II the dental profession has become increasingly involved with the health of the community. In consequence, a new dimension has been added to the traditional relationship between the individual practitioner and his patient. This has dictated an extension of that relationship to include the community of which the patient is an integer. The medical and nursing professions have had longer experience in this regard, particularly with respect to the measurement, prevention and control of social and health hazards that threaten the community as a social unit. Current trends suggest that dentists will continue to be drawn into closer association with the other health professions and into deeper involvement with society at large. If this is true, further modifications may ensue in the relationship between the dentist and his patient.

Following World War II, the dental profession was officially invited to join the other health professions in extending its knowledge and services beyond the individual patient to the community. Local, provincial and federal health departments modified their organizational structure to include dental administrative and consultative units. Schools of public health opened their courses to dentists. Dental schools added public health to their curricula. All this happened within

a very short period of time. By 1950 the federal government, all 10 provincial governments and some municipal administrations had embarked on dental public health programs of one kind or another. The Canadian Dental Association and all 10 of its provincial corporate members had formed public health committees charged with the responsibility of improving the oral health of the public, chiefly through health education. These outward manifestations of concern for the public were relatively easy to achieve. Official gestures by governments, professional schools and dental organizations were an essential and significant prelude to deeper involvement. However, changing the established traditions of governments and of the dental profession turned out to be quite another matter. All too often governmental budgetary allotments scarcely supported more than a minimum of dental personnel and sustained dental programs at a bare subsistence level. Public health organizational practice usually assigned the dentist to a low level in the administrative hierarchy. This, in retrospect, may have been reasonable for a beginner with minimal training. But this practice tended to restrict dentists in positions of little or no authority. Most dental public health positions thus offered a challenge only to the individual who is more dedicated to improving the health of the public than to material reward and status. Growth was slow. Some dental public health programs were shaped by concepts that did not originate with the dental public health officer. In other cases, the program expressed the convictions of a dentist whose ideas, derived from undergraduate training in a particular dental school, had not been observably modified by experience in a school of public health.

Most of the disciplines taught in schools of public health were new to dentistry and not easy to adapt and apply to dental programs. Only in health education did public health workers and practising dentists share a mutual interest. But the scientific and systematic pursuit of health education is difficult. Moreover, it can be a risky and frustrating undertaking when it concerns a controversial subject such as fluoridation. Public reaction to the

promotion of fluoridation suggests that neither public health dentists nor practising dentists have been effective educators in the past. The difficult educational challenge of fluoridation has not been adequately exploited by the dental profession. All too often the burden is carried by the medical profession or hopefully shifted to willing but inadequately informed laymen. Much evidence has accumulated to suggest that the dental profession is not as well qualified and motivated to put ideas into the heads of people as it is to treat the dental disorders in those heads.

The remaining disciplines of public health have barely been applied to the problems of community dental health. Their use in research, teaching and practice depends on training a proportion of public health dentists beyond the level of the diploma in dental public health. At present, few dentists are academically prepared for public health research and for teaching. In these fields, and also in administration, interesting and rewarding situations are reasonable expectations for dentists who are willing to proceed beyond the basic diploma. The extent to which public health concepts and philosophy have pervaded the profession is not known. Public health training of the dental undergraduate and of the practising dentist has been handicapped by the scarcity of qualified instructors. The limited number of public health trained dentists has severely restricted the pool from which universities can select qualified teachers.

Undergraduate instruction has often been on a part-time basis by a public health dentist who happened to be available and willing to teach. The few articles by public health dentists published in Canadian dental journals have dealt, for the most part, with technical projects. These articles do not dwell on the public health implications of the projects described. Such articles have limited value in helping the undergraduate and the practising dentist to obtain a useful concept of dental public health — its objectives and who should be involved.

As a university discipline, public health must provide the scientific and philosophic basis for sound public health prac-

tice and administration. The relationship between this university discipline and public health practice is somewhat analogous to the relationship between the basic medical sciences and the clinical practice of medicine and dentistry. As a university discipline, public health is free from the legal and economic limitations which govern the operation of a department of health. The health of a community depends upon many factors which cannot be manipulated by a health department. Among these are wages, education, living standards, climate, industrial and technical development, and so forth. Unfortunately, many so-called dental public health programs can claim only a putative kinship with the basic sciences of public health upon which they should depend for guidance. Dental edu-

cation, clinical practice and dental administration could likewise benefit by an infusion of new ideas derived from basic public health sciences. We believe this is dentistry's new frontier—a terrain that beckons the adventurous and holds unknown rewards for those who accept the challenge. But unless we accept this challenge, the profession's major efforts will be largely misdirected to a vain and singlehanded attempt at resolving a community-wide disease syndrome, patient by patient, tooth by tooth.

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1. Survey of Dentistry. Final report. Commission on the Survey of Dentistry in the United States. Byron S. Hollinshead, director. Washington, American Council on Education, 1961.

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Normal mandibular arch changes between ages 9-16

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Changes in size of the mandibular dental arch as related to the alignment of the mandibular incisors were studied serially between the ages of nine years and 16 years. A positive space differential between the size of the permanent teeth and the size of the dental arch failed to be an adequate predictor of even incisor alignment.

On a étudié le degré de développement de l'arcade dentaire inférieure en relation avec l'alignement des incisives inférieures, sur des groupes d'enfants âgés de 9 à 16 ans. Une différence favorable entre la dimension des dents permanentes et la dimension de l'arcade ne permet pas de prévoir de façon concluante une disposition régulière des incisives.

Parents of nine year old children often seek advice concerning the correction of irregular or rotated permanent mandibular incisors.^{1,2} It would be invaluable at this stage if the dentist could predict the normal changes in arch perimeter, mandibular incisor alignment and ratio of

permanent tooth size to arch size that occur during the mixed dentition period. This might help him to forecast the outcome for each individual patient.

This study was therefore undertaken for the purpose of determining the nature and extent of the aforementioned changes

under normal conditions of development between ages nine and 16.

We usually assume that mandibular arch size (arch perimeter as measured from the mesial surface of the left first permanent molar to the mesial surface of the right first permanent molar) will approximate the combined mesiodistal widths of permanent incisors, cuspids and bicuspid's if there is normal development between the ages of nine and 16. If the teeth are markedly larger than the arch size, we expect crowding. If they are considerably smaller, we anticipate spacing. In short, many dentists regard a mixed dentition analysis, within limits, as a good predictor of dental development. This article measures these limits during the course of normal development.

Nance³ reported that successful orthodontic therapy depends on a 1.7 mm. size differential between permanent cuspids and bicuspid's and deciduous cuspids and molars. He contended that arch perimeter should be 3.4 mm. larger than the combined mesiodistal widths of the permanent bicuspid's, cuspids and incisors. This difference between dental arch perimeter and the aggregate widths of the perma-

nent teeth, known as 'leeway,' is the amount of space available for growth in the dental arch to accommodate all of the permanent teeth.

To investigate Nance's concept, changes in arch perimeter, anterior tooth alignment and leeway were studied in 20 males ages nine to 16. Only subjects who exhibited normal mandibular development up to age 16 were selected for this purpose from the serial control sample of the Burlington (Ontario) Orthodontic Research Centre. Selection was based on the presence of regularity or mild irregularity in the incisor region at 16 years of age (Figure 1).

METHOD

Arch perimeter, tooth size, leeway, tooth irregularity and molar relationship measurements were taken at ages nine and 16.

Arch Perimeter.—Mandibular serial casts of 20 boys were measured at age nine and again at age 16 to assess changes in

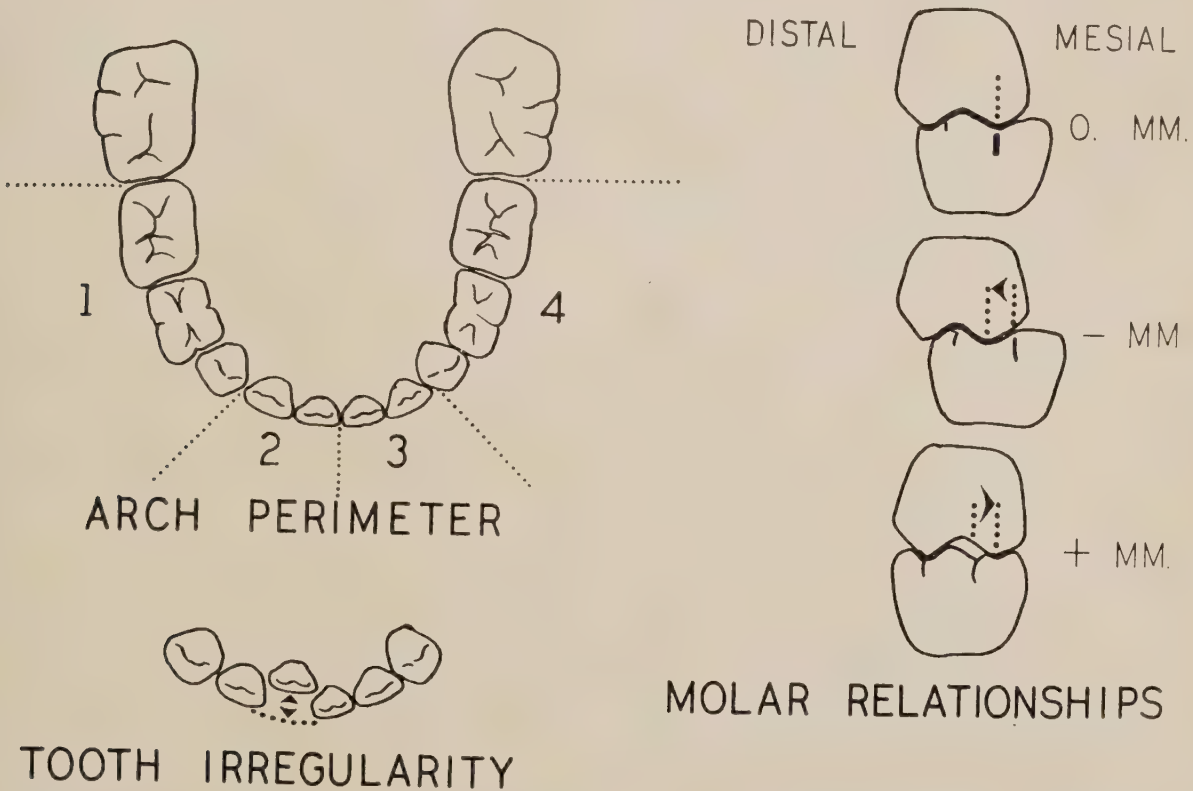


FIGURE 1 Measurement of arch perimeter, incisor irregularity and molar relationships.

arch perimeter. Arch perimeter was calculated from the following four measurements made with dividers: (1) right buccal segment (mesial surface of first permanent molar to mesial surface of cuspid); (2) right anterior segment (mesial surface of cuspid to midline); (3) left anterior segment (midline to mesial surface of cuspid); (4) left buccal segment (mesial surface of cuspid to mesial surface of first permanent molar). The four measurements were plotted as a straight line for ease in assessing visual changes (Figures 1, 2).

Tooth Size.—Mesiodistal widths of permanent bicuspid, cuspids and incisors were measured with dividers. The measurements were individually recorded and transferred to a straight line as was done in recording arch perimeter. All permanent teeth were measured from dental casts at age 16 to avoid the uncertainty of measurement that is inherent in radiographs.

Leeway.—This was calculated by subtracting aggregate mesiodistal widths of permanent bicuspid, cuspids and incisors from arch perimeter. The difference was recorded as positive or negative at the nine and 16 year age levels. Leeway at age nine was estimated by subtracting tooth size at age 16 from arch perimeter at age nine. Leeway at age 16 was estimated by subtracting tooth size (age 16) from arch perimeter (age 16).

If leeway is markedly positive, spacing is anticipated. If leeway is markedly negative, crowding would be predicted.

Tooth Irregularity.—Labio-lingual spread was measured according to Draker's method.⁴ In effect, this is the horizontal distance that the most irregular tooth departs from the normal arch perimeter. It is measured in millimetres (Figure 1).

Molar Relationships.—The amount of deviation of the mesiobuccal cusp of the maxillary first molar from the buccal groove of the mandibular first molar was measured in millimetres. This method was previously described by Hunter.⁵

Ideal molar relationship was observed

when the mesiobuccal cusp occluded exactly in the buccal groove. When the mandibular molar was displaced forward relative to the maxillary molar, the displacement was recorded as a negative figure. When the buccal groove of the mandibular molar was distal to the buccal cusp of the maxillary first molar, the displacement was recorded as a positive figure (Figure 1).

FINDINGS

In all of the subjects, arch perimeter decreased between nine and 16 years. Table 1 shows the variation in these measurements. Arch perimeter decreased by more than 5 mm. in over half of these relatively normally developed mandibular arches. The average reduction in the anterior segments amounted to 0.5 mm. Changes in the posterior segments showed a mean decrease of 4.3 mm. The overall mean reduction was 4.8 mm. This is 1.4 mm. greater than that reported by Nance.³

Arch perimeter measurements in this study were recorded at ages nine and 16. Tooth size measurements were actually taken from casts of 16 year old dentitions. This procedure differs from the method used by Nance, a fact which may account for the considerable difference in findings. Moreover, Nance did not report any reduction in the anterior segments whereas such a decrease was observed in 16 of the 20 subjects in the present study.

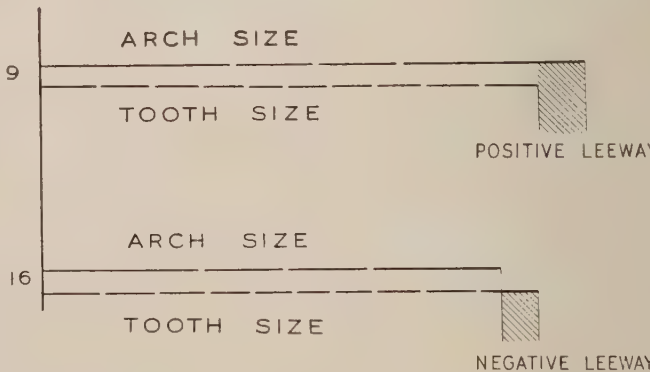


FIGURE 2 Measurements of arch perimeter and tooth size to calculate leeway at age nine and 16.

TABLE 1 Changes (in millimetres) in normal mandibular arch growth between ages 9-16.

Patient no.	Total arch length	Anterior segment	Posterior segment	Leeway	Labio-lingual spread	Right molar relationship	Left molar relationship
1	—6.5	—0.9	—5.6	—5.8	1.0	—0.5	—1.0
2	—5.1	—0.5	—4.6	—5.2	—0.1	—0.4	—2.1
3	—4.0	0	—4.0	—4.0	1.5	—2.5	—1.5
4	—3.6	— .2	—3.4	—3.1	0	—1.0	0.8
5	—1.3	—2.1	0.8	—2.0	—2.5	—1.0	0
6	—5.7	0	—5.7	—5.9	—0.3	—1.9	—1.5
7	—3.7	—0.5	—3.2	—4.2	0	0	—1.9
8	—5.4	—0.2	—5.2	—4.6	—0.1	—1.0	1.0
9	—3.8	—0.6	—3.2	—3.9	—1.4	—0.5	0.8
10	—4.2	—0.6	—3.6	—4.6	—0.7	—2.0	—1.2
11	—5.6	—0.6	—5.0	—5.9	—1.2	—4.0	—2.9
12	—4.0	—0.2	—3.8	—4.4	1.5	0.7	1.5
13	—5.3	0	—5.3	—5.0	—1.1	0.6	0.6
14	—6.7	—1.1	—5.6	—6.6	—0.2	0.8	—2.1
15	—6.3	—0.9	—5.4	—6.7	0	0	—0.9
16	—5.4	—0.2	—5.2	—5.4	0.4	0	—1.2
17	—5.7	—0.9	—4.8	—5.7	—0.8	—1.0	—1.3
18	—5.1	0	—5.1	—5.2	—0.5	—0.8	—2.1
19	—4.7	—0.3	—4.4	—4.9	—1.0	—1.3	—1.6
20	—3.2	—1.6	—1.6	—3.3	—0.3	—1.0	—3.1
Mean	—4.8	—0.5	—4.3	—4.8	—0.3	—0.8	—1.0

Change in Leeway.—In general, arch perimeter and leeway changes were proportional (Figure 3). Both measurements shortened a mean 4.8 mm. between ages nine to 16.

In this sample of normally developing nine year old dentitions the combined mesiodistal width of the permanent teeth was smaller than that of the deciduous teeth in every case. Consequently, when there is positive leeway at age nine, one would anticipate some later spacing in the buccal segments which could assist in the self correction of minor anterior tooth

irregularities. Additionally, the normal mesial drift tendency would help to close residual spaces throughout the arch.

When there is positive leeway at age nine, one would anticipate closure of all the spaces by age 16 (zero leeway). But this can only happen (1) if there is a 1:1 relationship between the mesiodistal widths of permanent teeth and arch perimeter, (2) if there is lingual movement of the incisors, or (3) if mesial migration of the buccal segments takes place. However, the mean reduction in arch perimeter in this study was actually

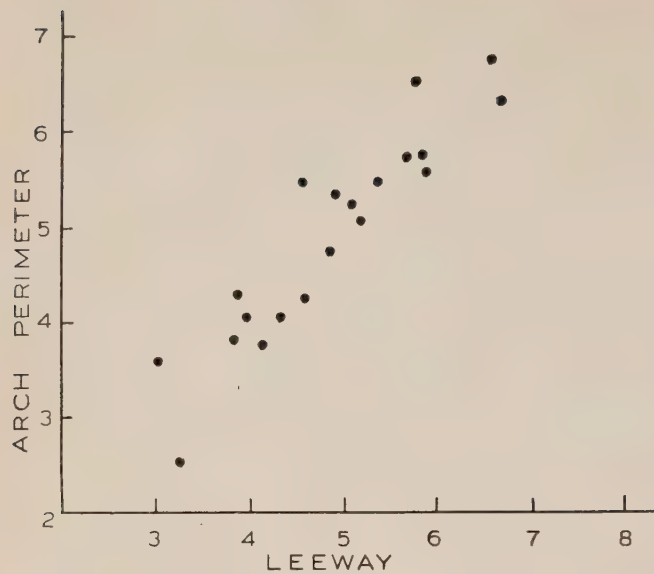


FIGURE 3 Changes in arch perimeter and leeway relationship.

0.9 mm. more than required for zero leeway at age 16.

Modifications in the tooth size—arch size relationship cannot account for a leeway reduction of this magnitude. Therefore it is obvious that some simultaneous lingual movement of incisors and/or mesial migration of buccal segments must contribute to this result.

Figure 4 shows a relatively low association between leeway at age nine and at age 16. Virtually all subjects had a positive leeway at age nine but 75 per cent had a negative leeway at age 16. Leeway decreased by 4-5 mm. in all but one of the subjects who had 3 mm. or less of

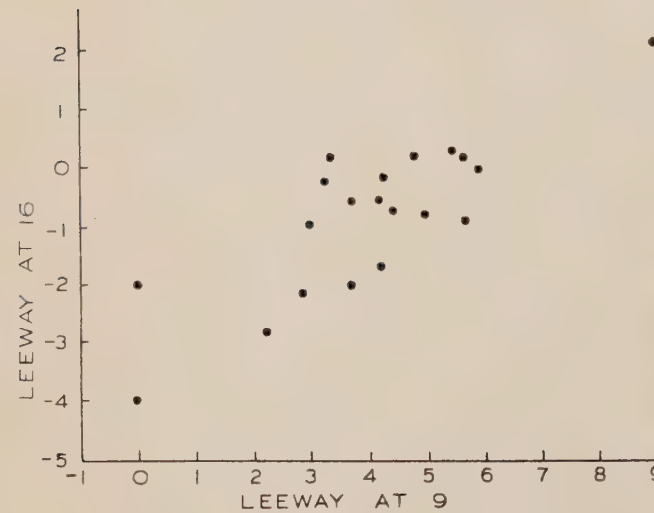


FIGURE 4 Relationship between leeway at ages nine and 16.

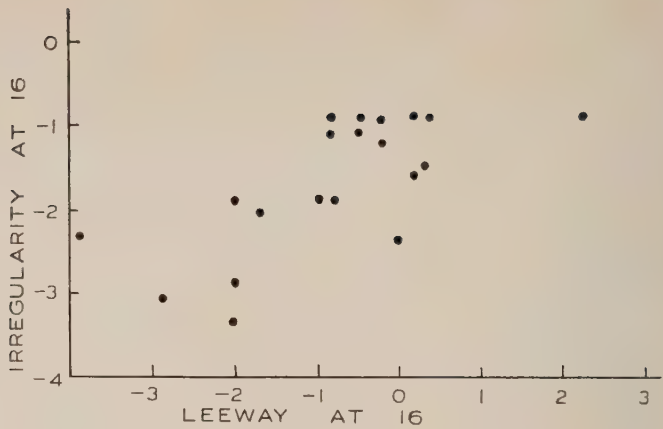


FIGURE 5 Relationship between leeway and incisor irregularity at age 16.

leeway at age nine. Apparently leeway change tends to be relatively constant (over 4 mm.) in normal development regardless of its extent at age nine. Thus, leeway at age 16 is not entirely dependent on the ratio of tooth width to available space at age nine.

Figure 4 graphically portrays the uncertainty of forecasting leeway from age nine to 16 years. For better prediction other factors must be associated with tooth size and arch perimeter to account for the additional arch changes.

Tooth Size - Arch Size Ratio.—Carey⁶ compared the mesiodistal widths of bicuspids, cuspids and incisors with arch size in the adult dentition. The present study revealed surprisingly little relationship between tooth irregularity and the tooth size-arch size ratio at age 16 (Figure 5).

Although five subjects (25 per cent) had negative leeway of up to 1 mm., their incisor alignment was comparatively regular. In these boys the contact points between cuspids and first bicuspids



FIGURE 6 Contact of cuspid with first bicuspid compensates to permit even incisor alignment.

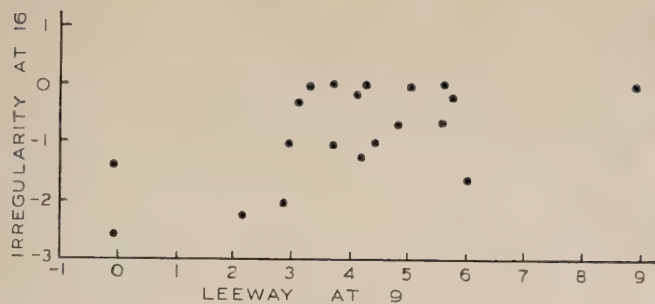


FIGURE 7 Relationship between leeway at nine years and incisor irregularity at 16 years.

showed considerable variation. This provided sufficient compensation to accommodate the incisors in even alignment (Figure 6).

Measurements of arch length were made in a horizontal plane only. Some subjects also experienced vertical change as manifested by an increase in the curve of Spee. This is not revealed by horizontal measurements.

The contact relationships of the teeth and the changes in the curve of Spee are regarded as adjustment mechanisms that permit even alignment of the incisors. These would otherwise become irregular if there were less than a 1:1 ratio of tooth width to arch perimeter. Although these adjustment mechanisms are small, they seem to make the difference between relatively regular incisor alignment and malocclusion.

Incisor Irregularity and Leeway. — Incisor irregularity at age 16 seems unrelated to the amount of leeway at age nine (Figure 7). This again indicates the hazard of predicting dental development from one age to another. Incisor irregularity increased in 13 of the 20 subjects. In three cases there was no change. In four cases there was evident improvement (Table 2).

Incisors that were rotated at age nine subsequently maintained their rotation. As space in the anterior arch segments diminished (which was frequently the case), the crowding of the rotated tooth became accentuated between age nine and 16 (Figure 8).

Negative labio-lingual spread increased

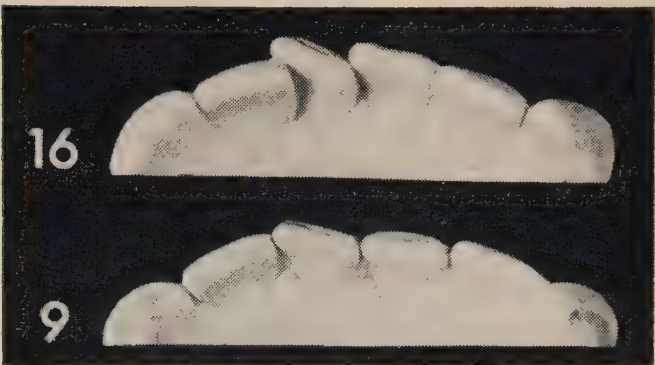


FIGURE 8 Crowding of lower central incisor increases between ages nine and 16.

by an average of 0.8 mm. in subjects with evident reduction in the anterior arch segments. Consequently, orthodontic treatment for the alignment of incisors must be instituted before there is a loss of buccal leeway during the period from age nine to 16.

Molar Relationships. — Changes in molar relationships varied considerably. No association was attempted because in three of the 20 subjects maxillary permanent teeth had been extracted in the maxilla. Moreover, this study was primarily concerned with normal developmental changes in the mandibular arch. It is

TABLE 2 Changes (in millimetres) in incisor alignment.

Increased irregularity	No change	Improved alignment
—2.5	0	1.5
—1.4	0	1.5
—1.2	0	1.0
—1.1		.4
—1.0		
— .8		
— .7		
— .5		
— .3		
— .3		
— .2		
— .1		
— .1		

simply noted that in more than half of the subjects the mandibular molars moved forward relative to the maxillary molars (Table 1).

CLINICAL IMPLICATIONS

Significant correlation co-efficients were unobtainable because the study embraced only 20 subjects. It is quite apparent, however, that during normal development future arch perimeter, tooth irregularity or leeway cannot be accurately predicted from arch perimeter, tooth size and labio-lingual spread measurements at age nine. Moreover, some degree of negative leeway at age 16 is quite compatible with relatively normal incisor alignment.

This study emphasizes the urgent need to determine the relationship of skeletal growth, particularly mandibular growth in degree and direction, to changes in dental arch perimeter during the nine to 16 year period. Other important factors, such as growth, function, interarch disharmony in tooth size, eruption sequence, and soft tissue behaviour, must also be considered and related to the changes that are observed.

A study of girls in the same age levels is also indicated to determine whether their mandibular changes and accommodation are similar to those of boys.

SUMMARY

1. Arch perimeter decreased in all 20 normal subjects studied between age nine and 16. This decrease exceeded 5 mm. in more than half of the subjects.

2. The anterior arch segments decreased a mean 0.5 mm. while the posterior segments showed a mean shortening of 4.3 mm. between nine and 16 years.

3. All subjects showed a positive leeway at age nine, yet two out of three showed negative leeway at age 16.

4. In 13 subjects, incisor irregularity was more pronounced at age 16 than at age 9. It was unaltered in four subjects and improved in four other cases.

5. Incisors that were rotated at age nine did not demonstrate spontaneous correction by age 16 regardless of the amount of positive leeway present at age nine.

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1. Fisk, R. O. When malocclusion concerns the public. *J. Canad. D. A.* 26:397, 1960.
2. Idem. Physiological and socio-psychological significance of malocclusion. *J. Canad. D. A.* 29:635, 1963.
3. Nance, H. N. Limitations of orthodontic treatment—I. *Am. J. Orthodont. & Oral Surg.* 33:177 and 253, 1947.
4. Draker, H. L. Handicapping labio-lingual deviations: a proposed index for public health purposes. *Am. J. Orthodont.* 46:295, 1960.
5. Hunter, W. S. Tooth size, spacing, crowding, arch relationships, arch dimensions in six and nine-year-old children. In: *Burlington Orthodontic Research*. Toronto, Division of Dental Research, Faculty of Dentistry, University of Toronto. (In press)
6. Carey, C. W. Diagnosis in orthodontics. *Angle Orthodont.* 20:155, 1950.

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Epidermoid inclusion cyst of the floor of the mouth: case report

An epidermoid cyst was excised from the floor of the mouth of a 44 year old male. The specimen consisted of a connective tissue capsule lined by stratified squamous epithelium with moderate amounts of keratin in the lumen. These non-malignant congenital lesions are rare.

■
On a fait l'ablation d'un kyste épidermoïde qui se trouvait dans le plancher de la bouche d'un patient de 44 ans. A l'étude microscopique du spécimen on a pu voir une capsule de tissu conjonctif doublé d'un épithélium pavimenteux. Il y avait une certaine quantité de kératine au centre du kyste. Ces lésions congénitales qui ne sont pas malignes sont plutôt rares.

CASE REPORT

History and Examination.—The patient, a 44 year old white married male, was first seen by us in August 1965. The chief complaint was a swelling under the tongue which the patient first noticed three months earlier. Since then the swelling had gradually increased in size, displacing the patient's complete lower denture and pushing the tongue toward the roof of his mouth. He consequently complained of difficulty in mastication and speech. Upon bimanual palpation a dough-like mass could be felt that measured approximately 8 cm. in diameter. The mass was readily displaced intra-orally (Figure 1). It also presented as a swelling beneath the mandible and appeared to be surgically somewhat more accessible through a skin approach. The remainder of the history and laboratory studies were normal.

Dermoid cysts of the floor of the mouth are rare. Meyer¹ states that the total number of reported cases is less than 160 in all.

These cysts are congenital in nature. They occur with equal frequency in both sexes and the average age of occurrence is between 15 and 35 years of age.

According to Meyer¹ an epidermoid cyst is a form of dermoid cyst that is histologically characterized by a cavity lined with epithelium and surrounded by a capsule. This type of cyst contains no skin appendages.

Differential Diagnosis.—The clinical appearance and firmness of the mass ruled out the diagnosis of ranula. A diagnosis of blocked Wharton's ducts was eliminated because saliva flowed freely from both orifices after the submaxillary glands were massaged. Moreover, radiographs of the region were negative for calculus formation. Infection of the floor of the mouth was not considered because the patient did not exhibit any of the local inflammatory signs or constitutional symptoms associated with infection.



FIGURE 1 Large swelling in the floor of the mouth with resultant elevation of the tongue.

Palpation and the distinct outline of the lesion in question negated the possibility of malignant tumour or normal fatty mass.

Treatment and Course.—Under general anaesthesia with naso-endotracheal intubation, a curvilinear incision following the contour of the inferior border of the mandible was made in the submental area approximately 5 cm. posterior to the symphysis menti. The incision was gradually deepened as the dissection proceeded through skin, subcutaneous tissue and platysma muscle.

The mylohyoid muscle was identified and transversely incised. The geniohyoid muscle immediately beneath was also incised transversely and a bulging silvery grey cyst wall was encountered. Careful blunt dissection with haemostats and fingers was used to free the cystic mass in one piece. The muscle layers and subcutaneous tissue were sutured with 3.0 plain catgut and a rubber drain was

placed in the depths of the wound. The skin was then closed with 5.0 black silk interrupted sutures.

Postoperatively the patient developed a considerable amount of sublingual oedema. A tracheotomy tray was kept ready at the bedside in case signs of respiratory distress developed. Pulse, blood pressure and respiration were checked every 30 minutes until these vital signs were stabilized. Fluids were administered intravenously until the patient was able to consume fluids well by mouth. The sublingual oedema progressively subsided and the patient was discharged from hospital on the fifth postoperative day.

Pathological Report.—Sections consisted of a cyst wall lined by stratified squamous epithelium with moderate amounts of keratin protruding into the lumen. The connective tissue capsule was dense and infiltrated with inflammatory cells. Blood vessels, fibrous tissue and cholesterol slits were present in the connective tissue capsule.

Diagnosis. — Epidermoid cyst; no evidence of malignancy.

COMMENT

Depending upon their relationship to the mylohyoid muscle, dermoid cysts may be present in either a sublingual or submental position. Those above the mylohyoid are in a sublingual position but may grow to sufficient size to produce a large pendulous mass beneath the mandible. Dermoid cysts below the mylohyoid are in a submental position, but these may also grow to a size that will produce a large smooth swelling in the floor of the mouth.

1. Meyer, Irving. Dermoid cysts (dermoids) of the floor of the mouth. *Oral Surg., Oral Med. & Oral Path.* 8:1149, 1955.

25 Brunswick Avenue

Single appointment approach to the space maintenance problem

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Unilateral stainless steel fixed paedodontic appliances are useful when a space maintainer is to be constructed and inserted in the mouth during a single appointment. The materials used are not expensive and can also be used for other dental procedures. On the other hand, these appliances require maintenance supervision to observe and remedy the occurrence of loose bands and to observe eruption of the permanent teeth in their correct position. The attractive cost and chairside elements of the one appointment space maintainer should not be regarded as licence to abuse a ready material and evade the dictates of proper operative dentistry.

Des appareils unilatéraux fixes construits en acier inoxydable peuvent être d'une grande utilité lorsqu'il est nécessaire de construire et de mettre en bouche un appareil de maintien en une seule séance. Les matériaux qui peuvent aussi être employés pour certains autres travaux dentaires ne coûtent pas cher. Par ailleurs, il est nécessaire de revoir le patient de façon régulière pour replacer les bandes qui pourraient s'être décimentées et pour s'assurer que les dents permanentes font éruption en position correcte. L'économie de temps et d'argent inhérente à ces appareils faciles à construire ne doit pas servir d'excuse pour abuser des matériaux préfabriqués pour s'écarter des principes établis.

The subject of space maintenance has attracted increased attention of late.¹⁻⁴ It is a prime responsibility of the dentist to supervise the growth and development of the dentition and oral structures of his child patients. No longer is it necessary to argue the merits of space maintenance. Instead, the modern dentist is

obligated to place a space maintainer when certain conditions arise in the young dentition in consequence to accidents, caries or congenital abnormality. Some of these indications were recently described by MacGregor.² Admittedly, there is still some argument about the relative need for space maintenance at

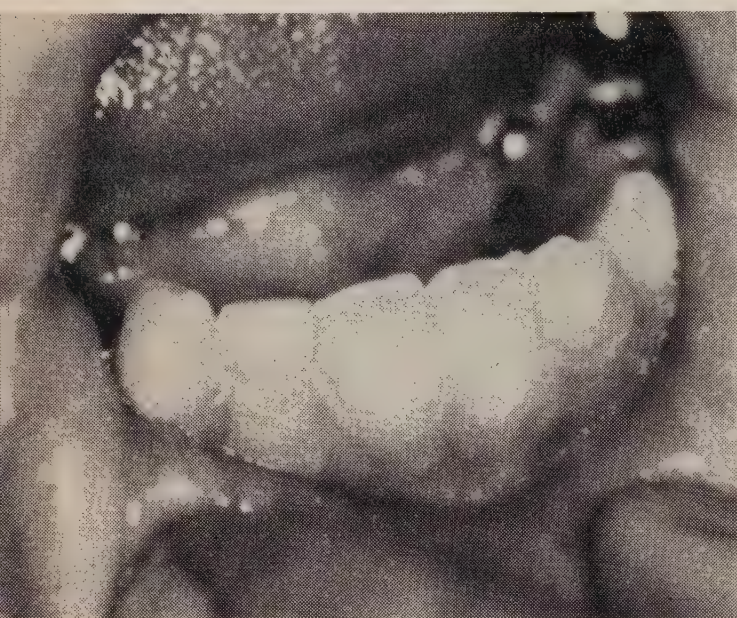
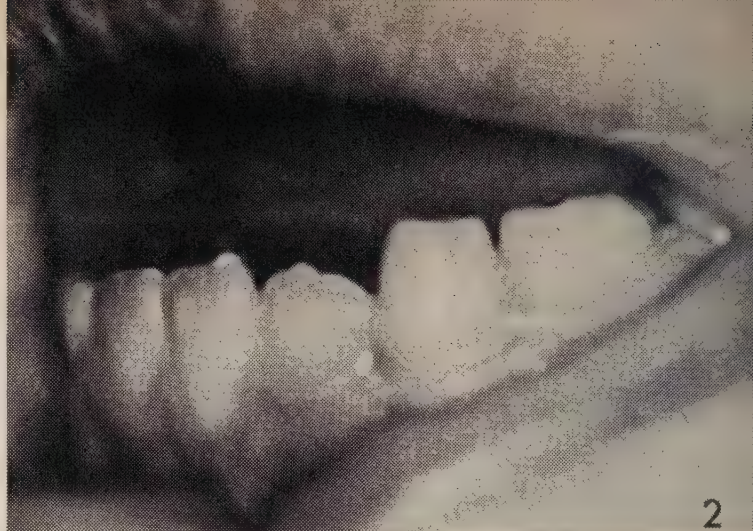


FIGURE 1 A band-and-loop space maintainer violating the mandibular right primate space.

Figure 2 Left side of the same patient as in Figure 1 shows that the primate space is a natural phenomenon and that the lower left permanent lateral incisor is erupting normally.

FIGURE 3 Anterior view of the same patient as in Figures 1 and 2. There is inadequate space for the eruption of the lower right lateral incisor and no chance for distal tipping or drifting of the lower right deciduous cuspid. A developing malalignment is caused by an improper space maintainer.

certain age levels.^{3,4} But until this question is resolved by further research, it is advisable to place space maintainers in areas of premature loss of deciduous teeth.

Preservation of the primate space, the normal occlusal plane and the integrity of both dental arches are the prime objectives of space maintenance. An appliance replacing either mandibular deciduous first molar that violates the primate space may cause adverse effects. This happens when the loop of a band-and-loop appliance is permitted to rest against either deciduous cuspid (Figures 1-3).

Equally important is the fact that a single appliance may not necessarily be adequate for all stages of dental development. A series of sequential appliances may be required to facilitate physiological shifting of the teeth, maintain arch integrity, prevent the extrusion of opposing teeth and maintain occlusion.

An ideal space maintainer:

Is easily designed and placed by practitioners of average ability;

Is adaptable to quadrant therapy in one appointment;

Requires minimal equipment;

Is moderate in cost to the patient and the dentist;

Does not increase caries susceptibility;

Is durable and resists corrosion and abrasion;

Permits re-adjustment when necessary;

Maintains arch length but does not violate the primate space;

Prevents over-eruption of opposing teeth;

Prevents mesial tipping of first permanent molars;

Allows normal initial eruption of bicuspids; and

Requires minimal supervision.

No single appliance fulfils all of these conditions. Cast space maintainers possess the virtue of strength and durability. Stainless steel appliances of the crown-and-bar or band-and-bar type are useful in situations where immediate insertion is required, as in quadrant therapy under general anaesthesia for handicapped chil-

FIGURE 4 A stainless steel crown adapted to a lower second deciduous molar prior to the placing of an intra-alveolar bar type space maintainer.

FIGURE 5 Stainless steel crown temporarily seated on a lower first deciduous molar. The offending second deciduous molar has been removed.

dren. These appliances must not, however, be used as a substitute for the usual operative and restorative procedures in children. Subject to this qualification, the present article is designed to offer information that will enable the practitioner to make use of unilateral stainless steel fixed paedodontic appliances in selected circumstances. Band-and-bar appliances are used when the abutment teeth are relatively intact. Crown-and-

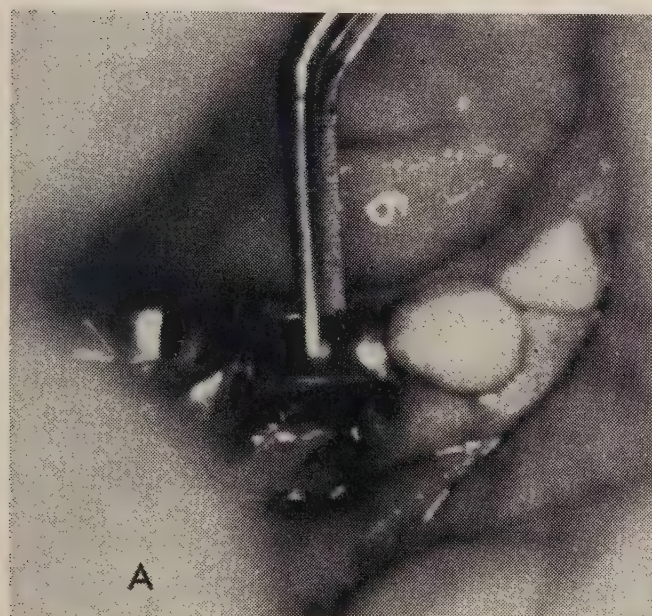
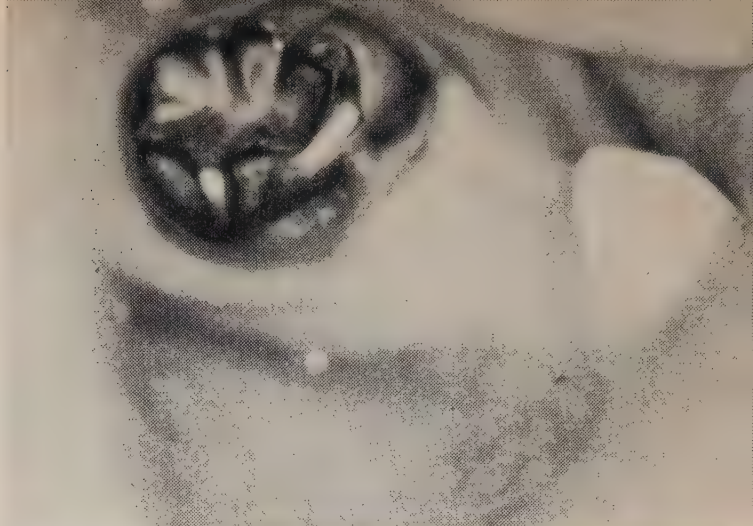
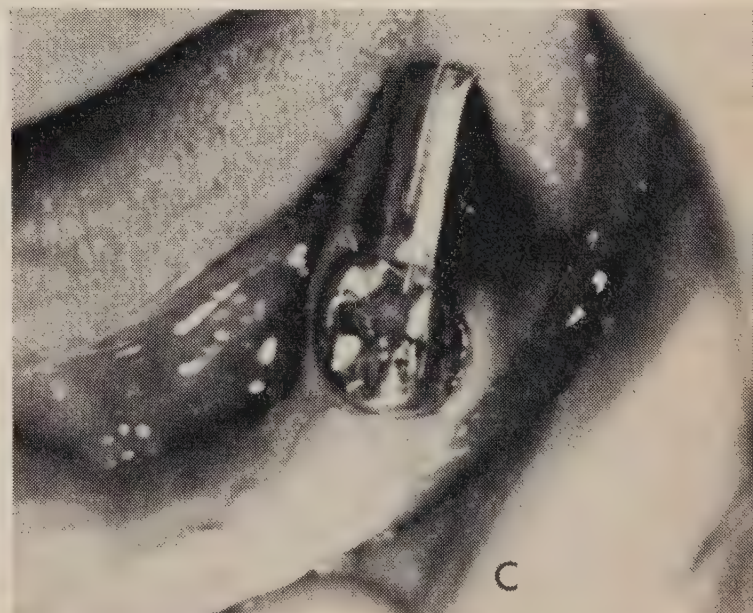
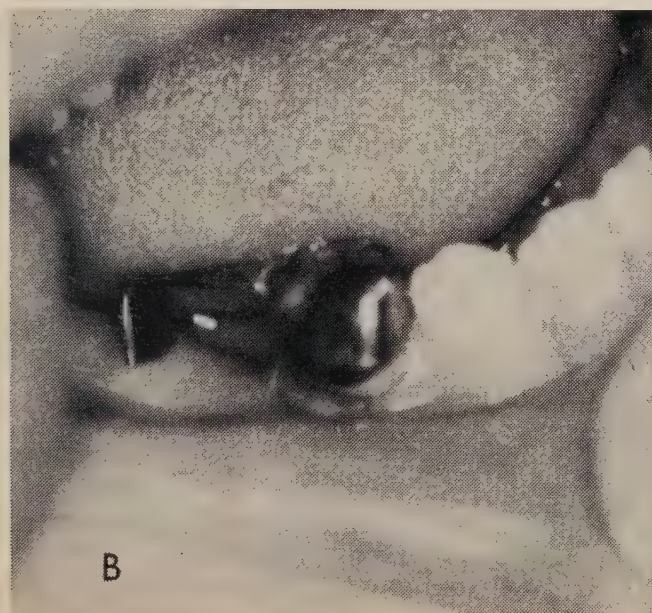


FIGURE 6 A, Selection of an L-shaped stainless steel bar to fit the space formerly occupied by an extracted tooth. B, Selection of a bar where a tooth has been previously extracted. A radiograph will determine the position of the unerupted first permanent molar and the previous location of the distal root of the extracted second deciduous molar. C, Positioning the bar in a patient where an immediate insertion space maintainer is being made. Note that the distal shoe extends under the gingiva to exactly where the distal root of the extracted tooth has been.



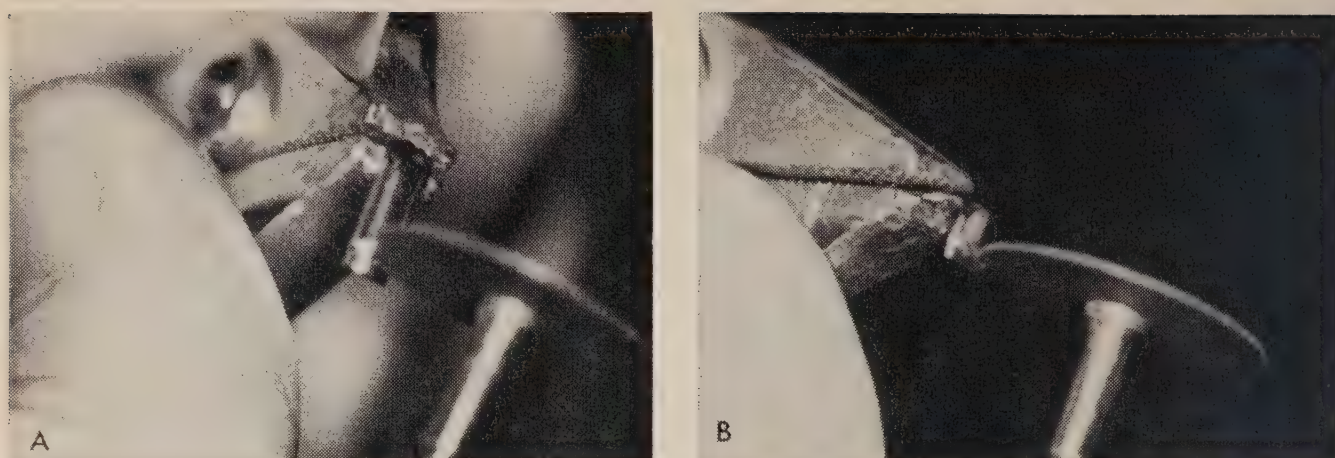


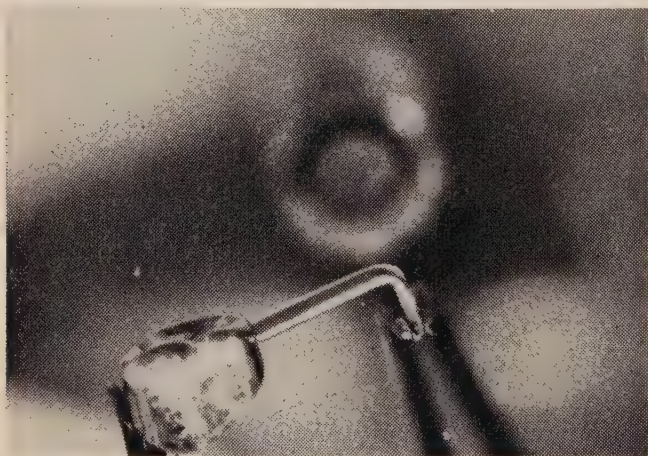
FIGURE 7 A, Reducing the space bar to proper length by use of a vulcarbo disc. B, Cutting the distal shoe to the desired distance under the gingiva.

bar appliances are used when the abutment teeth are badly decayed.

MATERIALS

- Preformed stainless steel crowns.
- Preformed stainless steel bands.
- A band seater.
- Preformed, bar-type space maintainer.
- L-shaped bar in large and small sizes.
- Ball-and-socket belling pliers to contour crowns and bands.
- Standard laboratory torch or small propane torch for soldering.
- Stainless steel solder and flux.
- Collar and crown scissors.

FIGURE 8 Approximating the component parts of the space maintainer. Solder is first applied to the proximal surface of the crown and to the end of the bar. The parts are then joined by free hand soldering as shown.



CROWN-AND-BAR APPLIANCE WITH DISTAL SHOE

1. Slice preparations should be made on the proximal surfaces of the proposed abutment tooth. The mesial and distal walls should be parallel or slightly tapering, narrowing toward the occlusal side with enough lateral clearance for the crown. Remove buccal and lingual undercuts and reduce the occlusal surface sufficiently for clearance of the crown.

2. Adapt a stainless steel crown of the proper size. Trim the crown with curved scissors or a large stone to proper length and contour. Margins of the crown should extend just below the free gingiva. Bell the crown to proper contour in its occlusal and middle third. Reduce its gingival diameter by crimping with a ball-and-socket pliers. Taper the gingival margin with a stone to a feather edge (Figures 4 and 5).

3. Extract the offending tooth.

4. Select an L-shaped stainless steel bar of the proper length. If the crowned abutment tooth is a first deciduous molar, the vertical member of the bar should extend along the distal wall of the distal root socket of the extracted tooth, (Figures 6 and 7). If the crowned abutment tooth is a second deciduous molar, the vertical member of the bar should extend along the mesial wall of the mesial root socket of the extracted tooth. Trim the bar to proper length.

5. Remove and wash the crown and the

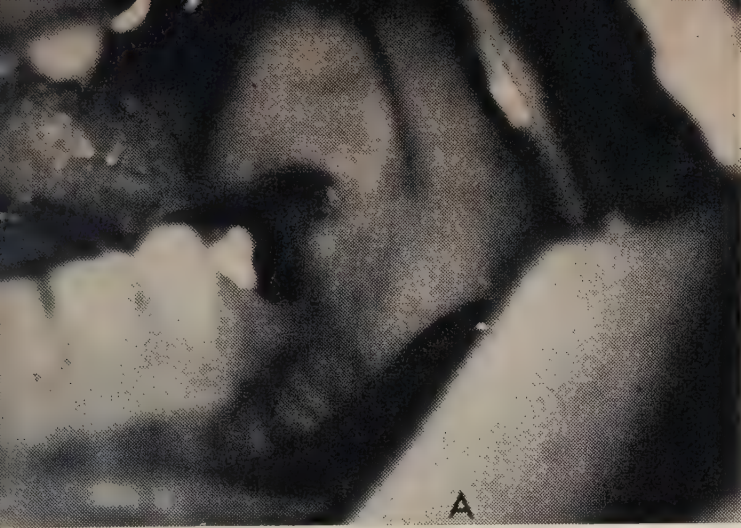


FIGURE 9 A, Space maintainer resealed to check the bucco-lingual position of the bar. B, Checking the occlusion of the crown and space maintainer.

FIGURE 10 Radiograph of a properly positioned space maintainer illustrating how the bar can prevent the extrusion of opposing teeth.

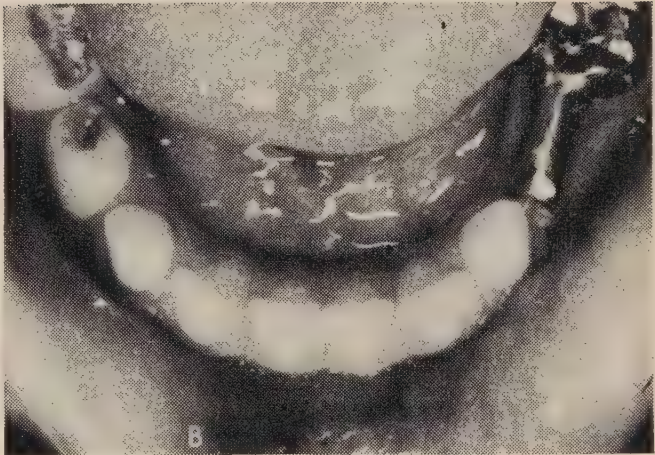
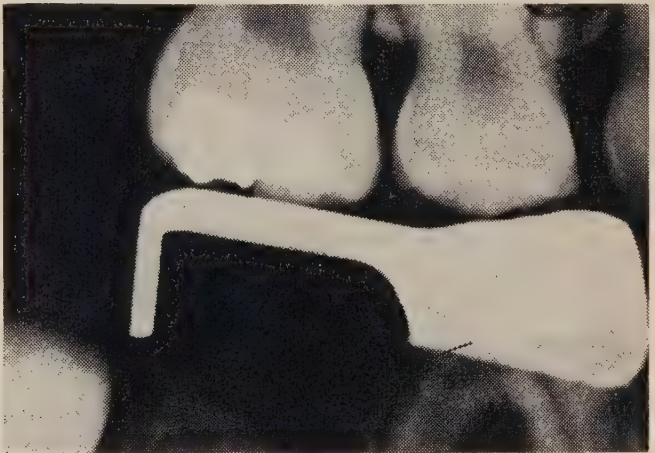


FIGURE 11 A, A space maintainer replacing a lower first deciduous molar and preserving the primate space. B, Occlusal view of a space maintainer. The primate space remains intact on the treated side as well as on the untreated side.

FIGURE 12 Radiograph of a space maintainer replacing an upper first deciduous molar and preserving the primate space.



FIGURE 13 Illustration of a stainless steel bar attached to a band on a sound tooth and the assembly cemented to place.

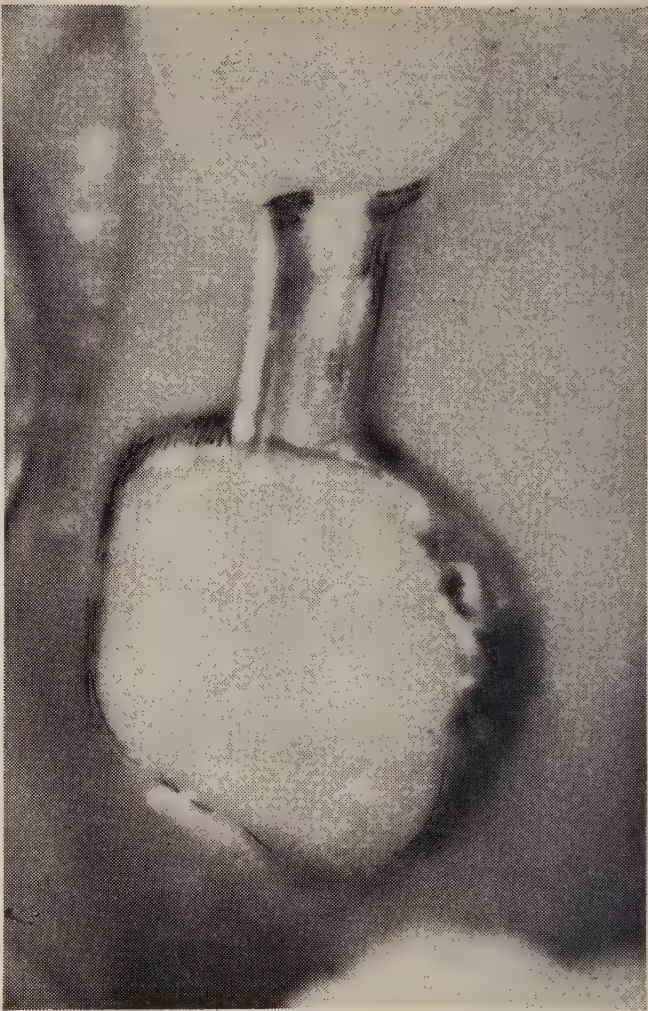
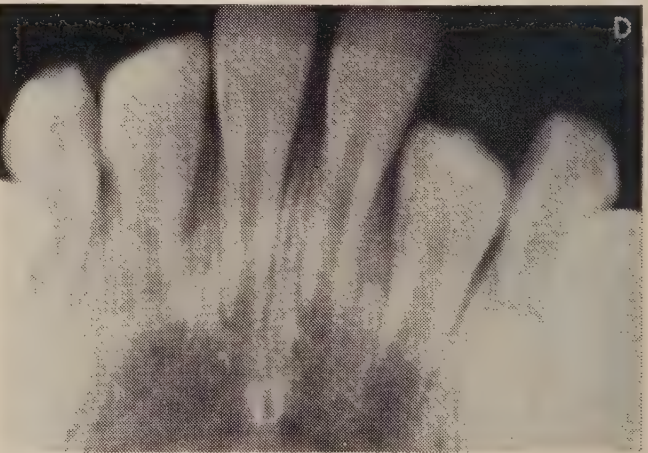
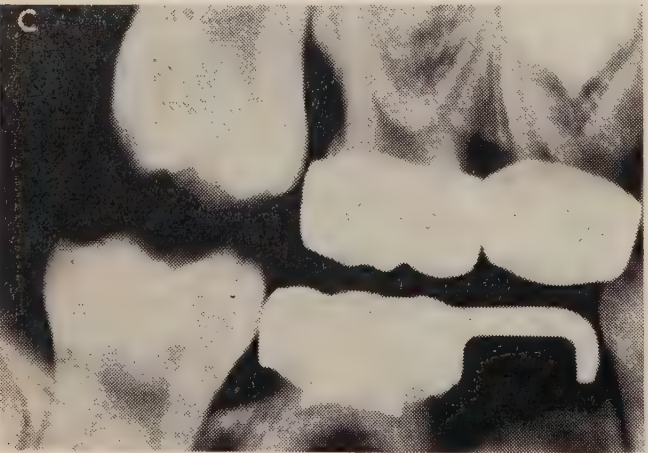
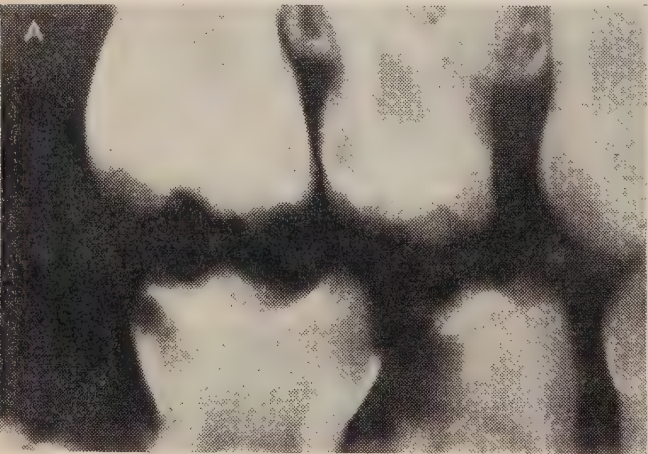


FIGURE 14 A and B, Three carious deciduous molars were treated by pulpotomy and crowned. The lower first deciduous molar was extracted and a space maintainer placed. B, The primate space has been preserved. C, The lower cuspid has moved distally as the lateral incisor erupts. Meanwhile, the lower second deciduous molar remains stationary while the first permanent molar erupts. D, The lateral incisors are erupting in normal alignment. This is in contrast to the condition portrayed in Figures 1-3.



bar. Flow a bead of solder over the proximal surface of the crown and the end of the horizontal member of the bar. Now solder the bar to the crown, making a butt joint (Figure 8). This obviates the necessity for a U-shaped bar, eliminates the risk of altering the gingival contour of the crown by the presence of bar material and solder bulk, and facilitates re-seating of the appliance.

6. Reposition the appliance gently in the mouth. Check for satisfactory buccolingual position and occlusion (Figures 9-12). If the bar is improperly aligned, it can be quickly separated from the crown by heating, and resoldered in the correct position.

7. Polish the finished appliance with chrome polish or with pumice and whitening. Cement with crown and bridge cement.

6. Polish the appliance and cement into place (Figure 13).

SUMMARY

Unilateral stainless steel fixed paedodontic appliances are useful when a space maintainer is to be constructed and inserted in the mouth during a single appointment. The materials used are not expensive and can also be used for other dental procedures. On the other hand, these appliances require maintenance supervision to observe and remedy the occurrence of loose bands and to observe eruption of the permanent teeth in their correct position. Moreover, the attractive cost and chairtime elements of the one-appointment space maintainer should not be regarded as licence to abuse a ready material and evade the dictates of proper operative dentistry.

*Staff member, Royal Alexandra Hospital, Edmonton.

1. Bennett, C. G. Stainless steel pedodontic appliances for general practice. *J.A.D.A.* 69:326, 1964.
2. MacGregor, S. A. When and where formula for space maintenance. *J. Canad. D.A.* 30:683, 1964.
3. Kronfeld, Sidney. Factors of occlusion as they affect space maintenance. *J. Den. Children* 31:302, 4th quart. 1964.
4. Lundström, Anders. Significance of early loss of deciduous teeth in the etiology of malocclusion. *Am. J. Orthodont.* 41:819, 1955.

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BAND-AND-BAR APPLIANCE

1. Select and adapt a preformed stainless steel band of suitable size to the proposed abutment tooth.

2. Extract the offending tooth.

3. Select and trim an L-shaped stainless steel bar to the required length.

4. Solder the band and the bar.

5. Reposition the appliance in the mouth.

Dental Economics News Letter • News of the latest developments in dental and health economics in Canada and abroad appears in the *Dental Economics News Letter* published by the Bureau of Economic Research of the Canadian Dental Association. The News Letter also contains direct quotations from articles appearing in newspapers and magazines. These portray the thinking in this field outside the profession. Association members who wish to receive the News Letter should make application to the Secretary, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

Fluoridation in Canada, 1966

Bureau of Economic Research

Despite some minor set backs, the total population living in communities with controlled fluoridation climbed by an estimated three-quarters of a million people between January 1, 1965 and January 1, 1966. Close to five million people living in eight provinces and two territories of Canada now are receiving the benefits of fluoridation.

Twenty municipalities in six provinces began fluoridating during 1965. Ten of these municipalities were located in Saskatchewan and five in Ontario; one of the latter was Ottawa with a population of around 300,000.

The provinces most responsible for the 19 per cent rise in the population drinking fluoridated water were Ontario and Quebec. Thirty-nine per cent more Quebec residents are receiving fluoridated water this year than last. Within the year, the population of Ontario benefitting from this public health measure has increased by almost one-quarter. British Columbia reported a gain of 14 per cent in its fluoridated population while the provinces of Alberta, Saskatchewan and Manitoba have shown increases of only 5 per cent or less. There was no change in the status of fluoridation in the Yukon. The provinces of Prince Edward Island and New Brunswick still have no municipali-

La fluoration au Canada, 1966

Bureau des recherches économiques

Malgré quelque échecs secondaires, le nombre de gens habitant des municipalités pourvues d'eau fluorée s'est élevé d'environ trois quarts de million entre le 1er janvier 1965 et le 1er janvier 1966. Près de 5,000,000 de personnes bénéficient actuellement de la fluoration dans huit provinces et deux territoires du Canada.

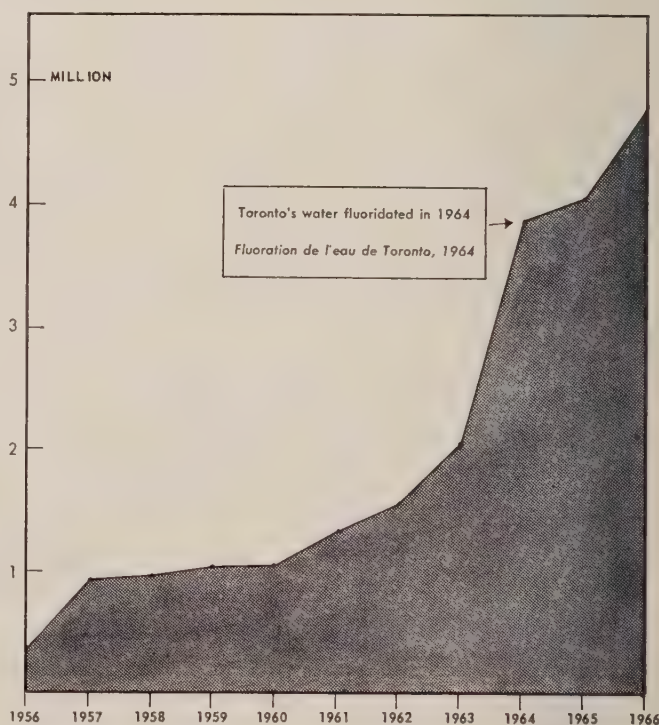


FIGURE 1 Nearly five million Canadians drink fluoridated water • Près de cinq millions de Canadiens consomment de l'eau fluorée.

TABLE 1 Population living in communities with controlled fluoridation, by province, 1966 • Population des municipalités qui ont fluoré leur eau, par province, 1966.

Province	Population	%	Province
Newfoundland	6,000	0.1	Terre-Neuve
Prince Edward Island	—	0.0	Ile-du-Prince Edouard
Nova Scotia	191,200	4.0	Nouvelle-Ecosse
New Brunswick	—	0.0	Nouveau-Brunswick
Quebec	410,900	8.5	Québec
Ontario	3,166,100	66.0	Ontario
Manitoba	573,300	11.9	Manitoba
Saskatchewan	279,600	5.8	Saskatchewan
Alberta	76,200	1.6	Alberta
British Columbia	86,900	1.8	Colombie britannique
Yukon	5,100	0.1	Yukon
Northwest Territories	6,500	0.2	Territoires du Nord-Ouest
Canada	4,801,800	100.0	Canada

ties with controlled fluoridation of their water supplies.

Several names have been dropped from last year's list of fluoridated communities. Harmon City, Newfoundland, has been excluded from this year's list because it is a United States armed forces base and does not serve Newfoundland civilians. Labrador City, Newfoundland, has temporarily discontinued fluoridation because of some problems in the distribution of its water supply. Carrot River, Saskatchewan, stopped fluoridating its water system when a new source of water which contained naturally the optimum concentration of fluoride was adopted. Fort Smith, Northwest Territories, initially fluoridated its water supply in 1960 when community affairs were administered by the federal government. The village council, which has been handling local affairs since the incorporation of the municipality in 1964, decided last year to discontinue the provision of fluoride in its water system.

Of all the provinces and territories, Manitoba has the highest percentage (60 per cent) of its total population drinking fluoridated water. Almost one-half of the residents of Ontario live in communities with controlled fluoridation as do more than one-quarter of the inhabitants of the

Vingt municipalités réparties dans six provinces ont adopté la fluoration en 1965. Dix de ces municipalités se trouvent en Saskatchewan et cinq en Ontario, dont celle d'Ottawa qui compte environ 300,000 personnes.

L'augmentation de 19 pour cent de la population consommant de l'eau fluorée est due surtout au Québec et à l'Ontario. Le nombre des habitants du Québec qui reçoivent de l'eau fluorée a augmenté de 39 pour cent du nombre de l'année dernière. En un an, la population de l'Ontario qui bénéficie de cette mesure d'hygiène publique s'est presque accrue du quart. La Colombie britannique indique une augmentation de 14 pour cent dans sa population bénéficiant de la fluoration tandis que l'Alberta, la Saskatchewan et le Manitoba ne rapportent que des augmentations égales ou inférieures à 5 pour cent. Il n'y a aucun changement au Yukon. L'Ile-du-Prince Edouard et le Nouveau-Brunswick ne comptent encore aucune municipalité dont les installations d'eau soient fluorées.

Depuis l'année dernière, plusieurs noms ont disparu de la liste des municipalités disposant de la fluoration. Harmon City (Terre-Neuve) ne figure pas sur la liste de cette année car c'est une base des forces armées des États-Unis qui ne des-

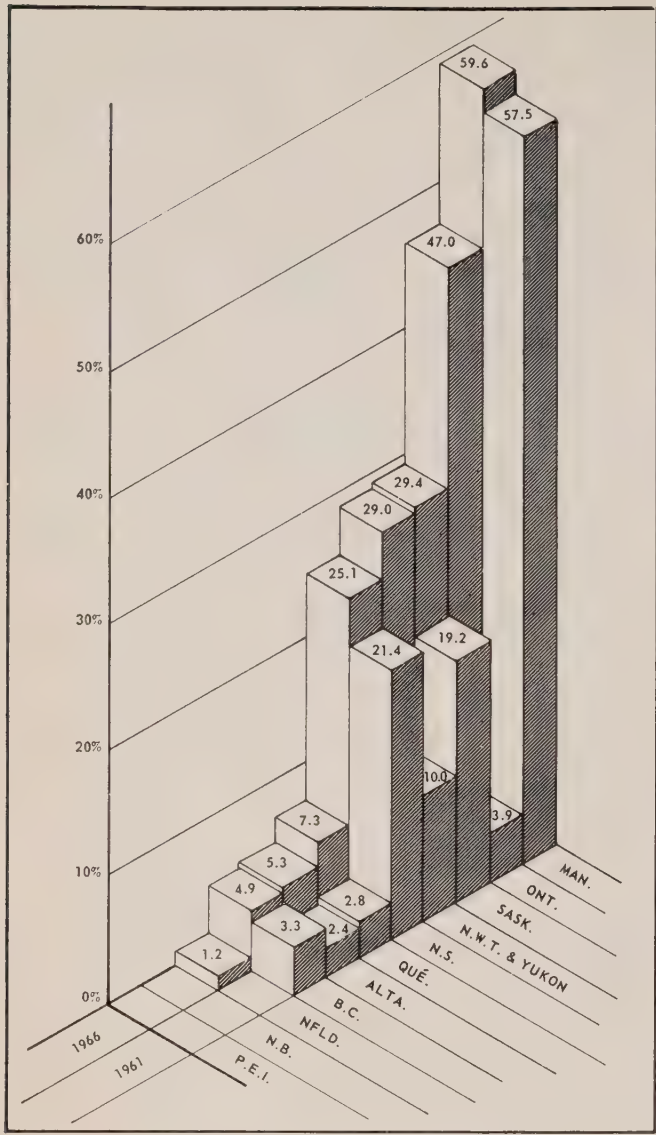


FIGURE 2 Nearly 60 per cent of Manitoba's population drinks fluoridated water • Presque 60 pour cent des Manitobains consomment de l'eau fluorée.

Yukon, Saskatchewan, the Northwest Territories and Nova Scotia.

The gradual growth in the acceptance of fluoridation as a necessary public health measure is encouraging. In 10 years, the percentage of the population served by water systems with controlled fluoridation has increased from 2 per cent to 25 per cent, from 333,750 people to 4,801,800. In addition, the Health League of Canada reports that 217,200 people living in Ontario, Alberta, Manitoba, Saskatchewan and Newfoundland are drinking water that is naturally fluoridated.¹ It has been further pointed out by the Health League that, of 12,720,000 Canadians served by central water supplies, 38 per

cent pas la population civile. Labrador City (Terre-Neuve) a temporairement suspendu la fluoration à cause de problèmes relatifs à ses installations. Carrot River (Saskatchewan) a cessé de fluorer son eau pour utiliser une source d'eau nouvelle qui présente à l'état naturel la concentration optimum de fluorure. Fort Smith (Territoires du Nord-Ouest) commença à fluorer son eau en 1960 alors que les affaires municipales étaient dirigées par le gouvernement fédéral. Le conseil du village, qui gère les affaires locales depuis que la municipalité a été constituée en corporation en 1964, a décidé l'année dernière de ne plus assurer la fluoration des installations d'eau.

Parmi les provinces et les territoires, le Manitoba possède le plus fort pourcentage de population consommant de l'eau fluorée (60 pour cent).

Près de la moitié des habitants de l'Ontario et le quart des habitants du Yukon, de la Saskatchewan, des Territoires du Nord-Ouest et de la Nouvelle-Ecosse, vivent dans des municipalités qui disposent de la fluoration.

Fait encourageant: la fluoration est de plus en plus acceptée comme une mesure d'hygiène publique nécessaire. En 10 ans, le pourcentage de population desservie par des installations d'eau fluorée est passé de 2 à 25 pour cent, soit de 333,750 personnes à 4,801,800. De plus la Ligue

TABLE 2 Per cent of total population in communities with controlled fluoridation, 1956-66 • Pourcentage de toute la population des municipalités qui ont fluoré leur eau, 1956-66.

Year	%
Année	
1956	2.1
1957	5.8
1958	5.9
1959	6.1
1960	6.0
1961	7.4
1962	8.4
1963	10.9
1964	20.5
1965	21.1
1966	24.5

cent receive water with either natural or controlled fluoridation.

A gain was the announcement that the Minister of National Defence had approved fluoridation at Canadian armed service bases.

Four provinces held a total of 17 plebiscites on fluoridation during 1965. Only four had a majority voting in favour of fluoridation and of these only one had a large enough majority to win approval of the measure. The Canadian Dental Association has recommended that provincial legislatures enact legislation to make fluoridation of communal water supplies mandatory.²

Condensed from a report prepared by the Bureau of Economic Research.

1. Health League of Canada. Status of fluoridation in Canada—controlled and naturally occurring as of December 31, 1965.
2. Canadian Dental Association. A brief submitted to the Royal Commission on Health Services by the Canadian Dental Association, March 1962.

Résumé d'un rapport du Bureau des recherches économiques.

canadienne de Santé signale que 217,200 habitants de l'Ontario, de l'Alberta, du Manitoba, de la Saskatchewan et de Terre-Neuve consomment de l'eau fluorée à l'état naturel. La Ligue de Santé fait aussi remarquer que, sur 12,720,000 Canadiens desservis par les installations d'eau urbaines, 38 pour cent reçoivent de l'eau fluorée naturellement ou artificiellement.

Le ministre de la Défense Nationale a approuvé la fluoration dans les bases des forces armées canadiennes, ce qui constitue un autre pas en avant.

Quatre provinces ont tenu 17 référendums sur la fluoration en 1965. On a obtenu une majorité en faveur de la fluoration dans quatre référendums seulement, et cette majorité a été suffisante pour entraîner l'adoption de cette mesure dans un seul.

L'Association dentaire canadienne a recommandé aux parlements provinciaux d'adopter des lois rendant obligatoire la fluoration des installations d'eau.

La langue française dans le monde • Saviez-vous que la langue française occupe aujourd'hui le premier rang dans le monde si l'on considère le nombre de nations dont elle constitue la langue officielle ou encore l'une des deux ou trois langues officielles. Ces nations sont actuellement au nombre de 25, à savoir: quatre en Europe (Belgique, France, Luxembourg et Suisse), deux en Amérique (Canada et Haïti), 19 en Afrique et dans l'Océan Indien (Cameroun, République Centrafricaine, Congo ex-Français, Congo ex-Belge, Côte d'Ivoire, Dahomey, Gabon, Guinée, Mali, Mauritanie, Niger, Sénégal, Tchad, Togo, Haute-Volta et Madagascar, auxquelles s'ajoutent l'Algérie, le Ruanda et le Burundi). Ce nombre ne comprend pas cinq autres nations utilisant le français comme langue administrative, secondaire ou véhiculaire, à savoir: Cambodge, Laos, Maroc, Tunisie et Viet-Nam. Au total, dans le monde, un pays indépendant sur quatre au moins est donc "d'expression française" d'une manière ou d'une autre. — Jacques Capelovici, Revue de la Confédération des Travailleurs Intellectuels.

Quebec authorities seek aid in identifying corpse

Mrs. Jean-Guy Lauzière, née Lizanne Lemire, aged 24, has been missing from her home since July 16, 1965. A corpse, five feet long and weighing 100-110 pounds, which corresponds to the description of the missing woman was found August 1, 1966 in a woodlot near St. Charles de Mandeville, Berthier County, P. Quebec. Due to advanced decomposition, the body could not be identified by customary methods. Evidence of past dental treatment is shown in the accompanying pictures. Any reader who recognizes these pictures is asked to communicate at once with J. M. Roussel, director of the Quebec Provincial Institute of Forensic Medicine, 443 rue St. Vincent, Montreal 1, P. Quebec.



On cherche à identifier un cadavre de jeune femme

Mme Jean-Guy Lauzière, née Lizanne Lemire, âgée de 24 ans, est disparue de chez elle depuis le 16 juillet 1965. Un cadavre que répond à la description de cette jeune femme, mesurant environ 5 pieds et pesant de 100 à 110 livres, a été déterré dans un bois situé près de St-Charles de Mandeville, comté de Berthier, P. Québec, le 1er août 1966. Bien que la décomposition du cadavre rendait impossible l'identification par les moyens usuels, le travail dentaire qui apparaît sur les photographies ci-jointes pourrait servir à établir l'identité de cette personne. Nous publions ces photographies dans l'espoir qu'un dentiste de la région pourrait reconnaître ce travail. Dans ce cas, prière de communiquer avec le docteur J. M. Roussel, Directeur de l'Institut de Médecine légale de la province de Québec, 443 rue St-Vincent, Montréal 1, P. Québec.



L'Association

Le programme de tests d'aptitude débutera en janvier '67

L'Association dentaire canadienne appliquera dès le début de l'année prochaine un programme de tests d'aptitude pour les futurs étudiants dentaires, ce qui contribuera à améliorer la sélection des étudiants dentaires de première année. Le programme canadien sera semblable à celui que l'American Dental Association a institué depuis quelques années.

Il est essentiel pour le candidat, pour la profession dentaire et pour les facultés dentaires que la sélection des étudiants de première année soit faite avec le plus grand soin. Les tests d'aptitude permettent de prévoir avec une grande exactitude les chances de succès des étudiants dans leurs études.

Les premiers tests canadiens auront lieu le 6 ou le 7 janvier 1967. Les centres d'examen seront situés dans les facultés dentaires ainsi que dans une vingtaine d'autres centres universitaires. Les frais d'examen sont de \$15.

On peut obtenir les formules d'inscription et les brochures de renseignements dans toute faculté dentaire canadienne ou au Programme des tests d'aptitude, Association dentaire canadienne, 234 St. George Street, Toronto, Ontario.

Canada

Cours de dentisterie opératoire

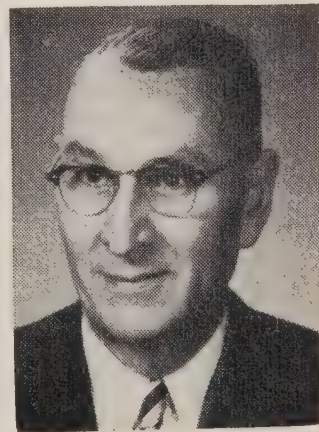
La Mount Royal Dental Society et le Montreal Chapter of Alpha Omega Fraternity offriront conjointement un cours

de dentisterie opératoire à l'Hôpital Général de Montréal, les 10 et 11 mars 1967. Le nombre des participants est limité. Le cours sera donné par le Dr G. D. Stibbs, et portera en particulier sur le plan de traitement, les raffinements des techniques opératoires, l'usage des instruments, les restaurations d'amalgame et d'or coulé, l'esthétique dans les traitements de restauration, ainsi que l'emploi de l'or pur.

Les demandes d'inscription doivent être accompagnées d'un chèque de \$100, à l'ordre de "Operative Course, in trust", et envoyées à H. Ptack, 1538 rue Sherbrooke ouest, Montréal, P. Québec.

Décès du docteur Strachan

Le Dr C. L. Strachan, dentiste membre de la Commission royale d'enquête sur les services de santé est décédé le 6 juillet à London (Ontario).



Le docteur C. L. Strachan

Barrett

Né au Manitoba, le Dr Strachan reçut son diplôme du Collège royal des chirurgiens

Examen du Collège royal des chirurgiens-dentistes du Canada

Les dentistes qui exercent une spécialité reconnue par l'Association dentaire canadienne et qui possédaient au 18 mars 1965 un certificat provincial de spécialiste sont informés que la date limite du dépôt des candidatures au premier examen d'admission au Collège royal des chirurgiens-dentistes du Canada a été fixée au 31 décembre 1966 à minuit. Cet examen a été établi conformément au Projet de loi S-44 (loi qui constitue légalement le Collège royal des chirurgiens-dentistes du Canada) article 6, paragraphe 2, qui déclare que d'autres dentistes, exerçant une des spécialités reconnues par l'Association dentaire canadienne, qui détiennent un certificat provincial de spécialiste lors de l'entrée en vigueur de cette loi (18 mars 1965) et qui ne deviennent pas fellows en vertu de l'article 2 (Conseil Provisoire) ni du paragraphe 1 de l'article 6 (Membres Fondateurs) de cette loi, peuvent, après une période raisonnable de temps à la suite de l'entrée en vigueur de cette loi, période qui sera fixée par le premier Conseil élu, demander à être reçus comme fellows sur examen.

Les demandes doivent être faites sur une feuille spéciale que l'on peut demander au Secrétaire, le Dr J. E. Speck, Suite 614, Medical Arts Building, 170 St. George Street, Toronto 5, Ontario. Chaque candidat recevra une brochure de renseignements sur les conditions à remplir pour l'examen, les frais, etc.

Les postulants qui ne feraient pas leur demande avant la date limite du 31 décembre 1966 ou qui ne sont pas admissibles d'après l'énoncé de la loi à présenter cet examen, peuvent demander à devenir fellows en vertu de l'article 3 des règlements du Collège, qui, actuellement, déclarent que les examens pour être reçu fellow consisteront de deux parties. Un candidat pourra, après avoir accompli les études prescrites telles que le Collège les aura définies pour sa spécialité particulière, demander à subir la 1^e Partie de l'examen, telle qu'établie par le Collège. S'il est reçu, il sera admis à assister aux réunions du Collège sans droit de vote. Après avoir satisfait aux conditions supplémentaires requises pour la 2^e Partie de l'examen, telles que définies par le Collège, il pourra demander à subir cette 2^e Partie de l'examen et être reçu fellow. On peut obtenir le détail de ces conditions en écrivant au secrétaire à l'adresse mentionnée ci-dessus.

giens-dentistes de l'Ontario en 1924.

Le Dr Strachan servit dans la milice avant la guerre et en 1939 il fut envoyé avec la Compagnie dentaire de la Première Division successivement en Angleterre et dans le nord-ouest de l'Europe. Après la guerre il s'installa à London, où il organisa une unité dentaire de réserve dont il reçut le commandement.

Le Dr Strachan fut président de la

Société dentaire de London en 1948 et président de l'Association dentaire de l'Ontario en 1958. Il fut aussi membre du Bureau des Gouverneurs et du conseil exécutif de l'ADC.

Il était membre de l'International College of Dentists et ancien président de la section canadienne de ce Collège.

Le Dr Strachan avait pris sa retraite en 1963.

Chronique internationale

Festival International du Film Dentaire à Paris l'année prochaine

Les dentistes, les laboratoires dentaires et les fabricants de fournitures et de matériel dentaires canadiens sont invités à présenter des films à un concours international de films dentaires qui fera partie du XIVe Congrès dentaire international qui doit avoir lieu du 7 au 13 juillet 1967 à Paris.

Les films soumis (16 mm) doivent traiter un aspect des métiers dentaires. Les films commerciaux ou non-originaux ne seront pas acceptés. Chaque film doit être accompagné d'un bref résumé (4-5 lignes). Un jury composé de 15 personnes choisira les films qui seront passés pendant le congrès et attribuera les prix.

Les demandes de participation au concours doivent être parvenues à J. Charon, secrétaire général du Congrès dentaire mondial de la FDI, 22 avenue de Villiers, Paris 17e, France, avant le 31 janvier 1967.

Les films soumis devront parvenir au secrétaire général le 1er avril 1967 au plus tard.

Aide américaine à l'enseignement dentaire du Sud Viet-nam

L'American Dental Association a envoyé le 2 août au Sud Viet-nam une équipe d'enquêteurs chargés d'étudier les possibilités d'expansion de l'enseignement dentaire dans ce pays. Ce voyage fait suite à un contrat passé avec l'Agency for International Development du Département d'Etat. Les enquêteurs ont examiné les installations de l'école dentaire qui font partie de la faculté de médecine de l'Université de Saïgon.

L'ADA pourrait par la suite prendre des décisions suivant les recommandations des enquêteurs. Celles-ci pourraient comprendre l'envoi de professeurs américains pour remédier au manque d'enseignants de l'école dentaire de Saïgon. Une autre mesure consisterait en un programme d'échange de professeurs, suivant lequel les enseignants dentaires vietnamiens

effectueraient des études post-universitaires aux Etats-Unis.

Cours à l'Université de Boston

Les programmes de la Boston University School of Graduate Dentistry comprennent des cours de chirurgie buccale, d'orthodontie, de périodontie, de prothèse, d'endodontie, de pathologie buccale, de pédonodontie et de dentisterie préventive.

Pour les formules de demande d'inscription et les renseignements complémentaires, écrire à H. M. Goldman, Dean, School of Graduate Dentistry, Boston University, 80 East Concord Street, Boston, Massachusetts 02118, USA.

Organismes dentaires

Le Collège du Québec crée un comité chargé de surveiller les relations entre l'ADC et le Collège

Un comité permanent, placé sous la direction du Dr G. M. Dundass, de Montréal, surveillera les relations entre l'ADC et le Collège des chirurgiens-dentistes de la province de Québec.

Formé à titre temporaire il y a quelques mois, ce comité avait déjà formulé plusieurs suggestions qui furent approuvées par le CCDPQ, et mises en pratique lors de la réunion de 1966 du Conseil des Gouverneurs de l'ADC, à Halifax.

Les docteurs Louis Bernier, de Québec, M. B. Archambault, Henri Brouillet, J. M. Chamard, Roger Charette et H. L. Musells, de Montréal, sont membres de ce comité.

Le Dr Tessier devient président de l'Association québécoise

La cérémonie d'installation du président de l'Association dentaire du Québec, le docteur Charles Tessier, de Sherbrooke, a eu lieu lors du congrès de cet organisme qui s'est tenu du 8 au 11 juin à Murray

Bay. Il succède au Dr Guy Boisclair, de Trois-Rivières.

Les autres responsables sont les docteurs Jacques Fiset, de Montréal, président élu; J. L. Lavallée, de Montmagny, vice-président, et Vincent Dontigny, de Trois-Rivières, secrétaire-trésorier.

Facultés dentaires canadiennes

Recherches sur les soins dentaires chez l'adolescent

Le département de dentisterie de restauration de la Faculté dentaire de l'Université du Manitoba a entrepris un programme d'enseignement et de recherche touchant à tous les aspects de la dentisterie pour les adolescents. Institué par le Dr G. A. Brass, chef du département, le programme est dirigé par le Dr C. R. Castaldi. Il consiste à traiter et à étudier sur une longue période, à la clinique de la Faculté, des enfants de 12 à 18 ans.

Les recherches portent, entre autres, sur les facteurs qui conduisent l'adolescent à se faire traiter, sur les problèmes relatifs aux ponts fixes chez les adolescents et les applications topiques répétées de fluor. On effectue des études sur les plaques dentaires en collaboration avec la biologie buccale, sous la direction du Dr Israel Kleinberg. D. L. Rennie, du département d'anthropologie et de sociologie, dirige les recherches portant sur les facteurs sociologiques qui influent sur les soins dentaires chez l'adolescent.

Fluoration

Le Kentucky n'approuve que les installations fluorées

Le ministre de la santé de l'Etat du Kentucky annonce qu'il n'accordera son approbation finale des installations d'eau publiques que pour celles qui seront fluorées. Les installations d'eau non fluorées ne recevront qu'une approbation

provisoire. Avec 64 pour cent de ses installations municipales d'eau fluorées, le Kentucky se classe au seizième rang aux Etats-Unis.

La Fondation Kellogg contribuera à développer la fluoration en Amérique latine

La Fondation W. K. Kellogg, de Battle Creek, (Michigan) et le Pan-American Sanitary Bureau, de Washington, s'uniront pour lancer une vaste campagne de fluoration dans toute l'Amérique latine. Au cours des quatre prochaines années, la Fondation versera \$149,644 et le Bureau \$143,800 pour développer la fluoration.

La fluoration des eaux de consommation a été beaucoup plus lente en Amérique latine qu'en Amérique du Nord, puisque 4.2 pour cent seulement de sa population bénéficie de cette mesure, alors que la lutte contre la carie dentaire y constitue une urgente nécessité.

Economie

Les dentistes du Québec fondent un syndicat

L'Association dentaire du Québec a créé un organisme dentaire entièrement nouveau pour défendre les intérêts des dentistes québécois. L'organisme a été fondé conformément à la loi sur les syndicats professionnels du Québec, sous le nom de Association syndicale professionnelle. L'ASP est formée sur le modèle des organismes syndicaux créés au cours des dernières années par les médecins spécialistes et omnipraticiens, ainsi que les pharmaciens du Québec. L'apparition de ces syndicats s'explique par l'intervention du gouvernement dans le domaine de l'assurance-maladie. Le but du syndicat est de participer à l'élaboration de conventions collectives entre les professions du domaine médical et le gouvernement provincial.

L'ASP se propose de compléter les rôles du Collège des chirurgiens-dentistes de la province de Québec et de l'Association dentaire du Québec. Un article du numéro de juillet-août du *Journal dentaire du*

Québec suggère que le Collège, en vertu de ses responsabilités dans le domaine de la réglementation et de la discipline, s'occupe principalement de l'intérêt du public. Le prolongement de la formation, grâce aux congrès et aux cours de perfectionnement, la publication d'un journal, les relations extérieures, l'assurance-groupe et la gestion d'un fonds bénévole sont les tâches imparties à l'Association dentaire du Québec. Quant à elle, l'ASP entend œuvrer pour les intérêts économiques des dentistes, grâce au pouvoir de faire valoir ses droits et de négocier garanti par les Articles 6 et 9 de la loi sur les syndicats professionnels.

126 condamnations pour pratique illégale au Québec

Le numéro d'août d'*Information*, publication du Collège des chirurgiens-dentistes de la Province de Québec annonce que 126 personnes ont été condamnées l'année dernière au Québec pour exercice illégal de la dentisterie.

Le montant des amendes infligées entre le 30 juin 1965 et le 1er juillet 1966 s'élève à \$30,625. Cela représente 33 condamnations de plus et \$6,625 d'amende de plus que l'année précédente.

Augmentation des honoraires du plan dentaire du Bien-Etre social de l'Ontario

Les honoraires distribués par le plan dentaire du Bien-Etre social de l'Ontario s'établissent depuis le 1er juillet à 90 pour cent de ceux de l'échelle des honoraires de l'Association dentaire de l'Ontario.

Les lois "Ontario General Welfare Assistance" et "Mothers' and Dependent Fathers' Allowance" accordent maintenant les soins dentaires de base à 46,448 personnes, soit 70 pour cent de plus que l'année dernière.

Une assurance dentaire individuelle

Aux Etats-Unis, la Reserve Life Insurance, de Dallas (Texas) offre une police d'as-

surance dentaire pour les particuliers. La police énumère les indemnités payables pour les restaurations, la chirurgie buccale, les traitements périodontaires, endodontiques et prosthodontiques. Le temps d'inscription exigé est de six mois pour les soins de chirurgie, de restauration, de périodontie et d'endodontie, et de deux ans pour les ponts fixes et prothèses.

Hygiène publique

De meilleures dents et plus d'enfants, à Toronto

Les enfants qui entrent à l'école maternelle du quartier Riverdale, à Toronto, ont les dents en meilleur état que la plupart de leurs camarades du reste de la ville, d'après le rapport annuel 1965 du Service de l'hygiène publique de Toronto. Le service attribue cela au fait que depuis 11 ans les enfants d'âge pré-scolaire de ce district reçoivent une éducation en hygiène et subissent des inspections dentaires. Ce programme, confié à des hygiénistes dentaires, est complété par des traitements. Depuis 1960, le programme préventif a été progressivement étendu aux autres districts du service d'hygiène, si bien qu'en 1965 les services dentaires pré-scolaires fonctionnaient dans six districts sur huit.

Le personnel dentaire du service d'hygiène est demeuré le même malgré l'augmentation constante de la population scolaire qui a dépassé 130,000 enfants l'année dernière. Néanmoins, les indices de santé dentaire qui, à Toronto, sont calculés chaque année depuis 1955, se sont améliorés dans l'ensemble.

Congrès de l'Association canadienne de santé publique, section dentaire

L'Association canadienne de santé publique a tenu son congrès au Château Frontenac de Québec du 31 mai au 3 juin, 1966.

Des représentants de la plupart des provinces du dominion ont participé aux

séances de la division d'hygiène dentaire auxquelles ont assisté plus de 40 dentistes cliniciens ou hygiénistes. Parmi les conférenciers on remarquait le docteur R. A. Connor et le docteur C. A. E. McCabe, de même que les docteurs L. Lemieux, P. Simard et J. Lambert.

Grâce à la traduction simultanée, les diverses séances du congrès ont pu avoir une portée beaucoup plus grande et l'on peut espérer que se réalise le vœu qu'exprimait le président, le docteur L. J. Bonneau, à la séance d'ouverture: "Ce n'est qu'avec la coopération de tous les intéressés que nous pourrons poser pied ferme et établir la structure d'une discipline vraiment nationale."

Recherche

L'IADR offre des bourses aux chercheurs étrangers

L'International Association for Dental Research met en vigueur un programme de bourses pour les chercheurs dentaires étrangers visant à attirer des chercheurs hautement qualifiés en les invitant à

travailler dans la recherche et l'enseignement aux Etats-Unis.

Ce programme permettra à deux chercheurs dentaires étrangers de passer six à douze mois dans un centre de recherche américain pendant l'année universitaire 1966-67. L'année suivante, le programme permettra d'inviter trois chercheurs de plus.

L'établissement et le candidat seront libres de choisir les programmes de recherche.

Les chercheurs choisis seront chargés de cours dans l'établissement auquel ils seront attachés et ils donneront des conférences dans d'autres établissements de recherche et d'enseignement.

Les frais de voyage entre le port d'entrée et l'établissement, ainsi que les frais de déplacement encourus à l'intérieur des Etats-Unis pour participer à des travaux dans d'autres établissements, seront remboursés. Le chercheur recevra également un traitement durant la période d'entraînement.

Les dentistes canadiens qui seraient intéressés peuvent soumettre leur candidature au doyen de la faculté de leur choix. Pour tout renseignement, écrire à A. R. Frechette, IADR executive secretary, 211 East Chicago Avenue, Chicago, 60611, USA.



Les conférenciers à la séance de clôture du congrès de l'Association canadienne de santé publique. De gauche à droite on remarque le docteur J. J. Marineau, secrétaire du congrès; le docteur C. A. E. McCabe, conférencier; le docteur L. J. Bonneau, président du congrès; le docteur R. A. Connor, conférencier. Le congrès avait lieu à Québec les 1er et 2 juin derniers.

The Association

CDA Protests Canada Medicare Discrimination Against Dentists

CDA Secretary W. G. McIntosh has protested against discriminatory provisions in the Canada medicare bill (C-227) which would guarantee payment when insured services are rendered by physicians but would deny compensation when identical services are performed by dentists.

Principally at issue — though not exclusively — are services in the category of oral surgery.

Current definitions for 'insured services' and 'medical practitioners' in Bill C-227 discriminate against dentists and their patients and should therefore be eliminated, Dr. McIntosh explained in a letter which he addressed September 26 to Federal Health Minister A. J. MacEachen.

The CDA secretary pointed to the following undesirable consequences if the present definitions were permitted to stand without further amendment:

Physicians would be recognized as the group that is qualified to perform certain oral treatment which dentists are equally entitled to render;

The public would be induced to seek oral treatment from physicians in preference to dentists;

Patients who prefer to receive oral treatment from a dentist would be denied unencumbered choice of a practitioner;

Public funds, to which dentists contribute, would be used to persuade the public to obtain oral treatment from other practitioners; and

The total availability of oral treatment services would be jeopardized if public demand for these services from dentists were to sink to a level where their inclu-

sion in dental graduate and undergraduate curricula would no longer be justified.

"The purpose behind the medical care act [Bill C-227] — the desire of the Government of Canada to ensure that health services are available to all citizens — is laudable," said Dr. McIntosh. "Justice and fairness demand, however, that the restrictive clauses which in effect discriminate against dentists and their patients be eliminated from this act."

President Coupland Visits East

Canadian Dental Association President J. P. Coupland of Ottawa visited dental societies in eastern Canada at the beginning of October. He was accompanied by Secretary W. G. McIntosh of Toronto.

Their schedule included meetings at Quebec City September 29, Fredericton October 1, Charlottetown October 3, Halifax October 5, and Grand Falls, Newfoundland, October 7-8.

Canada and the Provinces

Crash Dental Program Proposed in Saskatchewan

A five point crash program, to provide more dental services in Saskatchewan, was announced by Health Minister David Steuart last July 18. The plan involves:

A two-thirds increase in the number of dental bursaries to 150 from 90, in a campaign conducted in dental schools across Canada, with recipients expected to enter into a contract to establish practice in Saskatchewan upon graduation;

Provision by the government of six \$3,000 bursaries a year to dentists who will take postgraduate training to meet an acute need for dental specialists and teachers;

A proposal to register the first students at the new dental school, University of Saskatchewan, in 1968, instead of the originally scheduled 1969;

Training of dental hygienists at the university dental school and possibly instituting a course to train New Zealand type dental nurses; and

Inducement grants of \$5,000 to graduate dentists who will settle in areas designated as having an acute shortage of dentists (previously, \$5,000 loans had been available).

Health Minister Steuart, who reportedly interviewed the first applicant for a \$5,000 inducement grant on July 22, is quoted as saying that his government does not want to change the province's reputation for the "highest quality dental service in the world" but is equally concerned about the "70 per cent of the population who receive almost no dental care."

Hospital Dentistry Course at Scarborough Genl. Hospital Jan. 19-20

Scarborough General Hospital, Scarborough, Ontario, will offer a two day course in hospital dentistry January 19-20, 1967. This is the fourth annual seminar scheduled at this east suburban Toronto hospital.

Highlight of this year's course will be a series of workshop sessions. Topics include documentation and understanding and use of hospital records; emergency department and the dentist's role in emergency management of trauma, haemorrhage and infection; complications in the operating room, emergency department, or office; organization and integration of the dental department in the hospital; communication with the department of radiology; medical aspect of dental in-patient treatment; procedures specific to the dental department from admission to discharge; practical application of simple wiring in fracture; and equipment modification in the dental department.

There will also be a panel discussion on "What is the future for hospital dentistry?"

Early registration is desirable as attendance will be limited. The registration fee is \$65. For further details please write to the course registrar, E. G. Bertrand, 6 Glen Watford Drive, Agincourt, Ontario.

Frank Parry, Noted Dental Supply Salesman, Dies

Frank Parry, well known in the dental supply industry for many years, died recently and was buried in St. Catharines, Ontario, on August 30.

Born in Maple, Ontario, Mr. Parry began his career in 1898 with the former C. H. Hubbard Dental Supply Company of Toronto, transferring in 1902 to the Temple Pattison Company. In 1908 he travelled west to open a branch for Temple Pattison in Calgary. He remained with this company and its successor, the Ash Temple Company, until 1939.

At this time Mr. Parry transferred to the Dental Company of Canada Limited (Denco) and opened a Calgary branch for that company. Mr. Parry remained with Denco until illness compelled him to retire in 1947. He moved to Victoria where his health improved sufficiently to permit him to resume work—this time on behalf of the BC Dental Supply Company, covering Victoria and Vancouver Island. He retired finally in 1956.

During his active career, Mr. Parry became intimately acquainted with most of the dentists of western Canada.

International Items

Provisional Program Set for FDI Paris World Congress

The following preliminary program has been announced for the 14th World Congress of the Fédération Dentaire Internationale to be held at the Centre National des Industries et des Techniques (CNIT), Paris, July 7-13, 1967:

FRIDAY, JULY 7	
Morning	Opening ceremony
Afternoon	Commercial exhibits, art salon, historical exhibit, oral hygiene exhibit
SATURDAY, JULY 8	
Morning	Scientific session: oral surgery
Afternoon	ARPA Internationale session: periodontics
Evening	Paris Opera
SUNDAY, JULY 9	
Morning	Scientific session: oral surgery, prosthodontics
Afternoon	Scientific session: prosthodontics, therapeutics
MONDAY, JULY 10	
Morning	Scientific session: operative dentistry
Afternoon	Scientific session: operative dentistry
Evening	Concert at Sainte Chapelle
TUESDAY, JULY 11	
Morning	Scientific session: dental research
Afternoon	ORCA session: caries and fluoride research
Evening	FDI banquet at Chantilly
WEDNESDAY, JULY 12	
Morning	Scientific session: orthodontics, endodontics
Afternoon	Scientific session: operative dentistry with general anaesthesia
Evening	French music hall

Also featured in the program are a world conference on dental health education, panel discussions, table clinics, an international dental film competition, dental health exhibits, dental history exhibits, an art salon and an extensive dental trade show.

Social events include official receptions, banquets, visits to the opera, theatres and museums, concerts, excursions and a variety of post-congress tours.

Early reservation is recommended either with the hotel of your choice or through a travel agency.

Enrolment fees go up on January 1, 1967. Enrolment forms enclosed with the October 1966 *FDI News Letter* should therefore be completed and returned without delay to J. Charon, secretary general, 14th World Dental Congress, 22 Avenue de Villiers, Paris 17e, France.

Dental Doctorate Established in France

The French government has authorized the development of a new two year graduate program of higher education leading to a doctorate of dental surgery. Intended for dentists who seek advanced training in basic and applied sciences preparatory to careers in research, the new program will supplement existing

courses which culminate in the French State Diploma for dentists and the French State Diploma for doctors of medicine.

A decree issued by the French Ministry of National Education on June 9 points out that only holders of state diplomas will be admitted to the new doctoral program. A doctorate will be granted upon successful completion of the required curriculum as evidenced by two certificates of higher dental education and acceptance of a thesis.

French dentists have long requested the institution of graduate dental education programs comparable to those available in other European Common Market member nations. The new doctoral program partially fulfils these aspirations and complements an earlier government decree (September 22, 1965) which authorizes the creation of a system of national schools of dentistry in France. These new schools, as well as existing university medical schools, will likely provide the necessary instruction for the new doctoral program.

Dr. Skinner, Dental Materials Expert, Joins Coe Company

Eugene Skinner, emeritus professor of physics and lecturer in biological materials at Northwestern University School of Dentistry, Chicago, recently joined Coe Laboratories, Inc. as director of research.



Eugene Skinner

A pioneer in dental materials research, Dr. Skinner is the co-author of *The Science of Dental Materials*, a textbook which has been translated into four lan-

guages and which will soon go into its seventh edition.

Dr. Skinner retired as chairman of Northwestern Dental School's Department of Dental Materials in 1964. He has been a member of the faculty since 1934 and continues as a lecturer in dental materials.

New Headquarters for British Dental Association

On September 3 the British Dental Association moved into its new headquarters building at 64 Wimpole Street in London. One part of the building accommodating an assembly hall and museum will be completed at a later date.

Located in the same area, at 63 Wimpole Street, is the new headquarters of the Fédération Dentaire Internationale.

Dental Organizations

Dr. Merritt Heads NS Assn.

J. E. Merritt of Halifax recently assumed the presidency of the Nova Scotia Dental Association. He succeeds D. G. Pentz,



J. E. Merritt

also of Halifax. N. J. Layton, Truro, is president-elect and E. L. MacIntosh, North Sydney, is vice-president. W. H. Macneil, Halifax, continues as secretary.

Executive members include N. B. Anderson, Lunenburg; D. C. Eaton, Halifax (delegate to CDA Board of Governors);

G. M. Dewis, Halifax (registrar-secretary of the Provincial Dental Board); and H. M. Eaton, Halifax (delegate to the National Dental Examining Board of Canada).

Que. College Names Committee on CDA-CDSPQ Relations

A new permanent committee headed by G. M. Dundass, Montreal, will keep a close watch on relations between the Canadian Dental Association and the College of Dental Surgeons of the Province of Quebec.

Appointed temporarily some months ago, the committee has already made several suggestions which were approved by the CDSPQ and implemented during the 1966 CDA Board of Governors meeting at Halifax.

Members of the committee include Louis Bernier of Quebec City and M. B. Archambault, Henri Brouillet, J. M. Charnard, Roger Charette, and H. L. Mussells, all of Montreal.

Dr. Tessier Installed as President of Quebec Assn.

Charles Tessier of Sherbrooke was installed as president of the Quebec Dental Association during that organization's recent convention at Murray Bay June 8-11. He succeeds Guy Boisclair of Trois-Rivières.

Other officers are Jacques Fiset, Montreal, president-elect; J.-L. Lavallée, Montmagny, vice-president; and Vincent Dontigny, Trois-Rivières, secretary-treasurer.

Montreal Société Installs Dr. Cloutier

François Cloutier has been installed as new president of the Société Dentaire de Montréal. He succeeds Claude Madore.

Other members of the executive are: Gérard Lussier, president-elect; Lucien Latour, second vice-president; Jacques Casaubon, treasurer; Percy Génier, architect; Claude Madore, adviser; Hubert La-



Dean Wesley J. Dunn welcomes the first class of dental students to the Faculty of Dentistry, University of Western Ontario, London, September 12. When construction of the Dental Sciences Building is complete in the spring of 1968, classes of approximately 50 will be enrolled. Attending the historic first dental lecture at UWO were (second row, l. to r.) David Kenny, Waterloo; Ian MacLean, Woodstock; Dennis Nash, Fairview, Nova Scotia; Morley Bodnar, Sombra; (front row, l. to r.) Aaron Goldfarb, Toronto; Marilyn Morgan, Cannington; Ronald Hebden, Guelph; and John Lind, Brantford.

belle, secretary; and Jean-Claude Durand, assistant-secretary.

Named as councillors were Jacques Matteau, Léon Daigle, Colette Maranda, Réginald Richard, Gilles Leduc, Yves Boivin, and Guy Lahaye.

Dr. Burgman Heads Ontario Chapter CSDC

G. E. Burgman, Niagara Falls, was installed as president at the May 14 meeting of the Ontario Chapter, Canadian Society of Dentistry for Children. He succeeds K. W. Davey, Toronto. Other executive officers are G. K. Clarke, Hamilton, president-elect; Norman Levine, Toronto, vice-president; and E. G. Sonley, Willowdale, Ontario, secretary-treasurer.

Gordon Nikiforuk, Los Angeles, received an honorary life membership.

Speakers and their topics at this year's meeting included Sumter Arnim, Houston, Texas, control of rampant caries in children; Gordon Nikiforuk, (a) hypoplastic and discoloured teeth and (b) fluorides and dental caries; and Daniel Gar-

liner, Buffalo, New York, myofunctional therapy.

The next meeting will be an all day scientific session in Toronto May 13, 1967, just preceding the centennial joint convention of the Canadian and Ontario Dental Associations.

Royal Canadian Dental Corps

Promotions:

C. A. Casterton, Kingston, Ontario: captain to major

H. W. Brogan, Halifax: captain to major

Recent Transfers:

Maj. **M. N. Deyette**, Parry Sound, Ontario, and Capt. **H. Griesbach**, Verden, Germany—both transferred to new locations in Germany;

Maj. **J. H. Marion**, Cornwall, Ontario—

from France to RCDC School, Canadian Forces Base Borden, Ontario;

Capt. **R. M. MacDonald**, Mulgrane, Nova Scotia—to France;

Capt. **M. D. Taylor**, Prince Albert, Saskatchewan—from Germany to Trenton, Ontario;

Maj. **P. S. Sills**—from Washington (following two years' service as exchange officer with US Army Dental Services) to RCDC School;

Maj. **L. A. Reynolds**, Queensport, Nova Scotia — from Germany to Winnipeg (where he becomes staff officer of Training Command).

Four Officers at Postgraduate Courses

Two dental officers are attending postgraduate courses during the current academic year. Maj. **S. Muller** is enrolled in the dental public health course at the School of Hygiene and Faculty of Dentistry, University of Toronto. In Washington, Maj. **J. J. Y. Turcotte** is taking the one year course in advanced theory and science of dental practice at the Walter Reed Hospital.

Maj. **H. G. Bunston** recently attended a course on removable partial prosthodontics at the US Naval Dental School, Bethesda, Maryland. Maj. **A. T. Hinch** participated in a course on complete prosthodontics at the University of Michigan.

Economics

Dentists Would Like Company Tax Privileges without Incorporation

The public could be hurt if dentists and other health professionals were allowed to incorporate and become companies with limited liability. This is the gist of several briefs presented to the Ontario legislature's select committee on company law August 17.

Gordon Watson QC, spokesman for the Royal College of Dental Surgeons of Ontario, explained that the College is opposed to incorporation of dental practices

but still would like some of the tax advantages that accrue if members could form limited companies.

At present a corporation cannot be licensed and cannot lawfully practise dentistry or medicine in Ontario. If incorporation were permitted, other than licensed dentists might become members of an incorporated company and could exert control over the amounts of fees charged and standards of health care.

Instead of disturbing the Dentistry Act to allow incorporation, the RCDS would rather see permissive amendments to the federal Income Tax Act to equalize tax rates with those who are allowed to incorporate.

Quebec Dentists Form Professional Union

The Quebec Dental Association has launched an entirely new dental organization to safeguard the economic interests of Quebec's dentists. Known as the Professional Association Syndicate, the new group was established under the Professional Syndicates Act of Quebec. PAS is patterned after similar union-type organizations formed in recent years by Quebec's specialist physicians, medical general practitioners and pharmacists. These professional unions have emerged in response to increased government activity in health insurance. The purpose of the professional unions is to participate in collective agreements between the respective health professions and the provincial government.

PAS intends to supplement the functions of the existing College of Dental Surgeons of the Province of Quebec and Quebec Dental Association. An article in the July-August *Journal dentaire du Québec* claims that the College is primarily concerned with the public interest by virtue of its licensing and disciplinary responsibilities. Continuing education through conventions and refresher courses, the publication of a journal, public relations, group insurance and the operation of a benevolent fund are tasks for the Quebec Dental Association. For its part, PAS intends to work for the economic advantage of the profession "through the power to lay claim and to negotiate" pursuant

to Articles 6 and 9 of the Professional Syndicates Act.

Convict 126 for Illegal Practice in Quebec

One hundred and twenty-six persons were convicted for practising dentistry illegally in Quebec last year, according to the August issue of *Information* published by the College of Dental Surgeons of the Province of Quebec.

Fines totalling \$30,625 were levied between June 30, 1965 and July 1, 1966. This is an increase of 33 convictions and \$6,625 over the previous year's totals.

Public Health

40 Dentists at Quebec CPHA Meet

More than 40 public health dentists and dental clinicians from nearly every province of Canada attended the annual meeting of the Canadian Public Health Association at Quebec's Chateau Frontenac Hotel May 31 to June 3. Speakers included R. A. Connor and C. A. E. McCabe of the Department of National Health and Welfare, Ottawa; Lomer Lemieux, Ste. Foye; Paul Simard, Levis; and J. Lambert, Cap de la Madeleine. Simultaneous translation enabled all delegates to participate actively in the discussions.

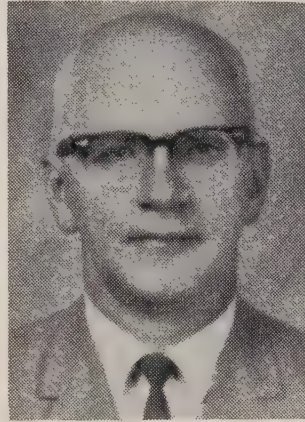
The next meeting of CPHA will be held April 24-27, 1967 at the Chateau Laurier Hotel in Ottawa.

Newly elected officers of the dental section are F. A. Kohli, Toronto, chairman; Frank McCombie, Victoria, vice-chairman; T. L. Marsh, Ottawa, secretary; and C. A. E. McCabe, Ottawa, continuing secretary.

Dr. Feasby Named N. York Twp. Dental Director

R. E. Feasby, Toronto, was recently appointed director of dental services for the Township of North York. As one of the

13 area municipalities which comprise Metropolitan Toronto, North York stretches across the northern perimeter of the metropolitan area.



R. E. Feasby

Dr. Feasby was director of the Dental Health Division of the city of Kingston for seven years and for the past five years has been assistant director of dental services for the city of Toronto. Following graduation from the Faculty of Dentistry, University of Toronto, in 1940, Dr. Feasby served with the Canadian Dental Corps. After retirement from the Corps, he conducted a private practice in Simcoe, Ontario. He earned a diploma in dental public health from the University of Toronto in 1954.

North York Township has decided to modify its present dental care program. Three dental hygienists have been added to the township health department which will inaugurate an intensive dental health education program for preschool and school children and parents in the community. Dental treatment will be provided on an incremental care basis with priority given to younger children in the school population.

Research

Three Project Awards for Montréal Faculty

Three Université de Montréal dental faculty members have been awarded new research grants totalling \$48,660. The awards will assist investigations of the

dental health and growth and development of French Canadian children, analgesic qualities of phenothiazine derivatives, and penetration of dye solutions into new enamel caries.

Arto Demirjian, professor of anatomy, received a Quebec Ministry of Health grant of \$35,000. His project, embracing six to 16 year old Montreal children from three distinct socio-economic strata, will include assessments of DMF scores, oral hygiene, periodontic disease and malocclusion. Eruption of permanent teeth, resorption of deciduous tooth roots and development of periapical lesions will be studied by panoramic radiography. Cephalographs and casts will be used to trace the course of cranial and maxillofacial growth. This will be supplemented by skeletal growth measurements and an attempt will be made to correlate skeletal and cranio-maxillofacial growth data. Exhaustive sociological, nutritional and medical investigations are expected to yield important additional background information about each child's environment.

Mme. Solange Simard-Savoie, professor of dental pharmacology, was awarded \$8,160 by the National Research Council of Canada to continue her work with the phenothiazine derivative trimeprazine. Mme. Savoie is seeking a non-toxicogenic analgesic equivalent in potency to morphine.

A \$5,500 NRC grant also went to Zdenek Mézl, director, Division of Dental Biology. Dr. Mézl is searching for ways of inhibiting carious lesions by reconstructing the sequence of initial enamel caries. His grant will permit the application of accelerated microcinematography in tracing the penetration of such lesions by dye solutions.

Research Conference Held in October

Seventy-five Canadian dental research workers met October 3-5 at Clear Lake in Riding Mountain National Park, Manitoba, for the fourth Canadian Conference on Dental Research. This was the largest attendance at any Canadian dental research meeting to date.

A portion of the conference time was devoted to workshop sessions on the future needs of dental research and the training of additional staff for existing and proposed new dental schools in Canada.

Representatives came from all dental schools in Canada, the CDA Council on Research and the Associate Committee on Dental Research of the National Research Council. Financial support was again furnished by the National Research Council and by a grant from the Procter and Gamble Company handled through the Canadian Dental Association. J. F. Cleall of the Faculty of Dentistry, University of Manitoba, headed the conference organizing committee.

Awards and Honours

W. J. Dunn, Dean of the University of Western Ontario's Faculty of Dentistry, was recently appointed to Ontario's newly created 15 member Council of Health. The council is the Ontario government's senior advisory body on health matters.

Deaths

- Bain, Arthur Murray. 62. Brampton, Ontario. Royal College of Dental Surgeons of Ontario, 1926. September 1966.
- Buchanan, William Murdoch. 67. North Sydney, Nova Scotia. Baltimore College of Dental Surgery, University of Maryland, 1923. 5-9-66.
- Crozier, A. 72. North Battleford, Saskatchewan. Royal College of Dental Surgeons of Ontario, 1916. September 1966.
- Fahey, Harold Joseph. 71. St. Thomas, Ontario. Royal College of Dental Surgeons of Ontario, 1922. 29-7-66.
- Graham, Thomas Howard. 80. Toronto. Royal College of Dental Surgeons of Ontario, 1909. 11-9-66.
- MacDonald, D. 80. Alexandria, Ontario. McGill University, 1915. 8-9-66.
- MacSween, Sydney Alexander. 71. Montreal. McGill University, 1920. 16-8-66.
- Sanderson, Herbert Maxwell. 85. Richmond Hill, Ontario. Royal College of Dental Surgeons of Ontario, 1903. 24-9-66.

in memoriam

Thomas Howard Graham

Dr. T. H. Graham of Toronto died on September 11, 1966 at the age of 80. Born in Meadowvale, Ontario, in 1886, he received his early education at the Model School in Toronto and Bradford High School. Dr. Graham graduated from the Royal College of Dental Surgeons of Ontario in 1909 and practised dentistry for more than 50 years in Toronto.

Dr. Graham was chairman for 13 years of the Anderson Study Group in Toronto which he organized and developed in 1936. This group is still active and recognizes his efforts by an annual bursary in his name at the University of Toronto. He was also chairman of the War Services Committee of the Academy of Dentistry (Toronto) from 1941 until 1947. In 1949 he was chairman of the Expansion Plan Committee of the University of Toronto Dental Alumni Association and helped lay the foundations of the present facilities of the University's Faculty of Dentistry. In 1958 he was awarded a fellowship in the American College of Dentists.

Dr. Graham is survived by one daughter, Audrey.

William Murdoch Buchanan

Dr. W. M. Buchanan of North Sydney, Nova Scotia, died on September 5, 1966 at the age of 67. Born in North Sydney, he received his early education there and then took premedical studies at Acadia University of that city. He subsequently entered Dalhousie University, Halifax, to study dentistry and two years later transferred to the Baltimore College of Dental Surgery, University of Maryland, where he graduated in 1923. Returning to North Sydney, Dr. Buchanan established a practice which he carried on until his death. He was elected to the House of Commons in 1953 and represented the riding of Cape Breton North and Victoria for four years.

Dr. Buchanan is survived by a sister, Mrs. Mae Hiscock of North Sydney, and a brother, John of Sydney.

Our Burgeoning Population • Canada's population at April 1 this year was estimated at 19,859,000, an increase of 1,621,000 or 8.9 per cent since the last census in June 1961. The various components in the growth of the total population of Canada since June 1961 are estimated as around 2,190,000 births, 500,000 immigrants, 700,000 deaths and 370,000 emigrants. — Canadian Chamber of Commerce News Letter, Summer 1966.

Occlusion

S. P. Ramfjord and Major M. Ash, Jr. Philadelphia and London, W. B. Saunders Company, 1966. (Available from McAinsh & Co. Limited, Toronto) 396 p. Illus. \$16.20

This new text on occlusion approaches the subject from a biological and physiological basis. The authors present this controversial subject in a manner both understandable and meaningful. The subject, possibly one of the most difficult to understand in dentistry, is approached in a concise and methodical manner. The basis and background for each suggested principle of occlusion is fully developed from the biological and physiological standpoint in order to permit the reader to see the rationale of each concept.

The first section of the book describes some of the current advances in neurophysiology of occlusion. The second portion presents the aetiology of functional disturbances of the masticatory system. The third section deals with treatment and closely relates this to the previously proposed principles.

This is a sound text that is applicable to all phases of dentistry, and a worthwhile addition to all dental libraries.

M. W. Packer

Pathology of Tumours of the Oral Tissues

R. B. Lucas. London, J. & A. Churchill Ltd., 1964. (Available from Queenswood House Limited, Toronto) 316 p. Illus. \$16.35

The author, who is the pathologist at the Royal Dental Hospital of London, presents the reader with a description of the histopathology of tumours that occur in and about the oral cavity. He has purposely minimized the clinical and radiological aspects to give emphasis to the histogenesis and morphology of these numerous lesions.

The first chapter, devoted to the main features of embryological development of the teeth and jaws, gives enough information to indicate the broad sources of origin of oral tumours.

Existing terminology is used without attempting to criticize or reclassify such contentious fields as the odontogenic tumours. The various sections are arranged to include tumours of the dental tissues (odontogenic tumours), those of debatable dental origin, and those of non-dental origin that occur in the jaws. These are followed by metastatic tumours and those of the salivary glands. Finally, cysts of the oral tissues and dysplasias of bone complete the subject matter.

There are several hundred illustrations, all of outstanding quality, the majority being photomicrographs. Each chapter has a generous reference list that provides the interested student with a wealth of supplementary information. Both the clinician and microscopist will find much to add to their knowledge of any or all of these tumours.

H. A. Hunter

Periodontics for the Dental Practitioner

J. D. Manson. Chicago, Year Book Medical Publishers Inc., 1966. 220 p. Illus. \$13.75

The author makes quite clear in the title of the book and in his preface that he views periodontics "not as a special branch of dentistry but as a discipline central to the practice of conservative dentistry." I heartily endorse such a concept. The author has fulfilled this aim with an economy of words and a profusion of well chosen and excellently reproduced line drawings and half-tone illustrations. In the chapters which mainly deal with surgical treatment and occlusion, Manson's point to point description and abundant use of figures will help the reader to practise what the author is describing. This section is, in fact, like a 'cook-book' on periodontic therapy. Manson makes it sound so disarmingly simple that practitioners should not be too disappointed if they do not achieve results equivalent to those of the author.

I agree with the general plan of the book whereby the treatment of chronic periodontic disease is discussed in detail first and acute gingival and periodontic diseases are described later. But, a certain lack of

organization and duplication appears in the consideration of acute gingival and periodontic diseases. I also wonder about the merit of placing discussion of the case history and treatment plan practically at the end of the book rather than at the beginning. Maybe the author believes that there is no use planning something if you do not know what is feasible in the line of treatment. I rejoice in his disarmingly frank and short chapter on periodontosis. He is one of the very few authors who has been completely honest with our knowledge of this subject which, as all of us should admit, is very little. He similarly treats systemic conditions in a short but frank chapter.

To those in general practice and even many so-called specialists this book is a must. As far as the undergraduate student is concerned, I would have many reservations if this were the only text suggested for instruction. As an adjunct to others it would be most helpful.

The author, publisher, photographer and artist are all to be congratulated on this project.

J. R. Trott

Clinical Endodontics

R. F. Sommer, F. D. Ostrander and Mary C. Crowley, Ed. 3. Philadelphia and London, W. B. Saunders Company, 1966. (Available from McAinsh & Co. Limited, Toronto) 571 p. Illus. \$15.70

The Michigan group, pioneer in undergraduate and postgraduate teaching of endodontics, continues to be an authority in this field of dental education and service. This book is on a par with others recently issued in this expanding field. Its usefulness might have been extended by a more complete and recent bibliography. However, the text is written within the framework of procedures and instrumentation taught and used by the authors—hence the correctness of the subtitle, "A Manual of Scientific Endodontics."

This third edition will be particularly welcomed by those whose endodontic training has been derived from the authors' teaching, and this includes a very high percentage of North American endodontists. Basic information has been brought up to date in many areas, such as chemotherapeutic agents, control of pain, and studies of bacteriological controls. Well illustrated case histories show, step by step, the execution of routine and complicated treatment procedures. Included also are recent reports on case histories presented in earlier editions.

The inclusion of a chapter on the teaching of endodontics promises to be valuable not only in teaching institutions, but also to the practitioner who may feel the need to review and upgrade procedures in his own office.

Of particular interest are case reports on traumatic injuries, non-surgical management of teeth with periapical pathosis, and endodontic failures. A wealth of information is available in these chapters alone.

In the new format each page is printed in two separate columns, which makes reading considerably easier.

L. V. Taylor

Fifty-Two Pearls and Their Environment

J. C. Muhler. Bloomington, Indiana, Indiana University Press, 1965. 186 p. Illus. Cloth \$5.75. Paper \$1.95

This book, prepared for parents and children, is intended to meet the need for educational material capable of upgrading public understanding of good dental health practices. Practising dentists, too, might profit from the author's presentation of a familiar subject in language which is understood by most people.

A graphic description of the need for improving dental health practices is achieved by depicting the widespread distribution of dental disease in the United States.

The fundamentals of tooth development, eruption and composition are given. The author consistently uses terminology that is meaningful to the lay reader when describing the mechanics and morphology of tooth decay, the rationale of 'Why dentistry for children?', what parents must expect when they take a child for his first dental appointment, variations in restorative technique for children as opposed to adults, the need for dental radiographs, care of the periodontic structures, and oral manifestations of systemic diseases. The author has also included a chapter on dental prostheses and a warning to alert the unsuspecting public about the pitfalls of attendance by unlicensed dental mechanics.

Dr. Muhler is at his best when reviewing the place of dentifrices in the prevention of dental caries. I found the historical approach enlightening. The role of fluorides in the prevention of tooth decay is handled equally well. Canadians will have justification for being sensitive about the misspelling of Brantford when allusion is made to the classical study of fluoridation by our Department of National Health and Welfare. The subject of nutrition and its relationship to the prevention of dental diseases is carefully handled in a manner which is meaningful to parents and children alike.

I congratulate Dr. Muhler on his perseverance in preparing a book in language designed to upgrade public appreciation of good dental health and good dental care. I hope this book can be made readily available for public consumption.

H. A. Grimsrud

Additions • Acquisitions

- ABRAMSON, I. I. and NORRIS, J. P. Atlas of endodontic technique; a clinical guide. St. Louis, Mosby, 1966. 188 p. illus.
- ARPA INTERNATIONALE. Rapports et communications du XVIIIe Congrès de l'Association pour les Recherches sur les Parodontopathies. Berlin 22-26 mai, 1966. Paris, Masson & Cie. 368 p. illus.
- BOAN, J. A. Group practice. Royal Commission on Health Services. Ottawa, Queen's Printer, 1966. 79 p. \$1.00
- CANADIAN PHARMACEUTICAL ASSOCIATION. R Dental prescriber's guide. 20 p.
- DENTAL CLINICS OF NORTH AMERICA, July 1966. Symposium on pedodontics. Philadelphia, Saunders, 1966. Pages 239-534. illus.
- DRUGS OF CHOICE, 1966-1967. Edited by W. Modell. St. Louis, Mosby, 1966. 969 p. \$18.10
- EUROPEAN ORGANIZATION FOR RESEARCH ON FLUORINE AND DENTAL CARIES PREVENTION. Vol. 4. Proceedings of the 12th Congress, Utrecht, The Netherlands, 9-11 June, 1965. Edited for ORCA by P.M.C. James, Klaus G. König, and Hans R. Held. London, Pergamon Press, 1966. 246 p. illus. \$20.35
- HASTINGS, J. E. F. and MOSLEY, W. Organized community health services. Royal Commission on Health Services. Ottawa, 1964. 328 p. \$3.50
- ILFORD LIMITED. I. X-ray processing. 64 p. II. Medical x-ray films and chemicals. 30 p. illus. III. Dental radiography. 48 p. illus. London, Tavistock House, 1965.
- JENKINS, G. N. The physiology of the mouth. Ed. 3. Oxford, Blackwell, 1966. 495 p. illus. \$13.75
- JENSEN, J. R. Pulpal problems and their detection. (Practical Dental Monographs, May-June 1966.) Chicago, Year Book. 22 p. illus.
- KRESHOVER, S. J. AND McCLURE, F. J., ed. Environmental variables in oral disease. A symposium presented at the Montreal Meeting of the American Advancement of Science—December 1964. Washington, A.A.A.S., Pub. No. 81, 1966. 312 p. illus. \$8.75
- MONTGOMERY, G. L. Pathology for students of dentistry. Ed. 3. Edinburgh, Livingstone, 1966. 399 p. illus. \$9.00
- MUHLER, J. C. Fifty-two pearls and their environment. Bloomington, Ind., Indiana University Press, 1965. 186 p. illus. \$5.75
- O'BRIEN, R. C. Dental radiography; an introduction for dental hygienists and assistants. Philadelphia, Saunders, 1966. 171 p. illus. \$6.50
- PARK, V. R. and ASHMAN, J. R. A textbook for dental assistants. Philadelphia, Saunders, 1966. 509 p. illus. \$10.80
- REMICK, H. Embryology of the face and oral cavity. Teaneck, N.J., Fairleigh Dickinson University, 1964. 53 p. illus. \$3.75
- SAYWELL, J., ed. Canadian annual review for 1965. Toronto, University of Toronto Press, 1966. 569 p. \$25.00
- SCHROETER, C. The dentition of man; an atlas of tooth morphology. Seattle, University of Washington Press, 1966. 118 p. illus.
- SCHWARZ, A. M. AND GRATZINGER, M. Removable orthodontic appliances. Philadelphia, Saunders, 1966. 355 p. illus. \$19.45
- SCOTT, J. H. and DIXON, A.D. Anatomy for students of dentistry. Ed. 2. Edinburgh, Livingstone, 1966. 560 p. illus. \$10.75
- SICHER, H. Orban's oral histology and embryology. Ed. 6. St. Louis, Mosby, 1966, 416 p. illus. \$13.00
- SMITH, J. F. Histopathology of salivary gland lesions. Montreal, Lippincott, 1966. 182 p. illus. \$12.00
- SOMMER, R. F., OSTRANDER, F. D. and CROWLEY, M. C. Clinical endodontics. Ed. 3. Philadelphia, Saunders, 1966. 571 p. illus. \$15.70
- STEELE, P. F. Dimensions of dental hygiene. Philadelphia, Lea & Febiger, 1966. 520 p. illus. \$13.75
- THE AMERICAN DENTAL SOCIETY OF EUROPE. Transactions of the 71st Meeting held in Florence, Italy, July 6-9, 1965. 55 p.
- US DEPARTMENT OF HEALTH, EDUCATION AND WELFARE. Fluoridation census, 3d annual ed. Washington, Public Health Service, 1966. 51 p.
- WORKSHOP ACTUALIZING THE POTENTIAL OF PREVENTIVE DENTISTRY, August 10-12, 1965. Washington, D.C. The Curators, University of Missouri, Columbia, 1966. 165 p.

Canada medicare discriminates against dentists

The medicare bill (C-227), which at this writing is still before our federal legislators, raises once again the unpalatable prospect of discrimination between two health professions to the disadvantage of the general public. If adopted in its present form, this bill will guarantee payment when insured services are rendered by physicians but will deny compensation when identical services—principally in the nature of oral surgery—are rendered by dentists. The crux of the matter is Ottawa's determination to insure physicians' services only for the present. The federal government is thereby treading the same tortuous path which the Ontario government first traced in 1964 and later modified.

Alert CDA officials have lost no time in lodging the most vigorous personal and written protests against this injustice. For there can be little doubt that the adoption of Bill C-227, as presented to Parliament, will have far reaching repercussions for the public as well as the profession. It would certainly extend *de facto* recognition to physicians as being the only group qualified to perform these treatment services which dentists are equally entitled to render. This would induce patients to seek treatment from physicians in preference to dentists. At the same time it would penalize those patients who would still prefer to receive such treatment from a dentist. Equally objectionable would be the spectacle of public funds, to which dentists contribute like everyone else, being used as a fiscal device for diverting patients from dentists to other practitioners. If this were to assume an appreciable dimension, one would sooner or later have to question the retention of relevant instruction in graduate and undergraduate dental curricula. The net effect of all this would be a diminution in the reservoir of practitioners capable of rendering this important facet of health care. In the long run no one would benefit, the dental profession would be harmed and the public would lose.

The government defends its action by claiming that it is more expedient to insure physicians' services first and provide for the services of other professions at a later date. Expedient or not, this separate treatment of physicians and dentists is clearly inconsistent with the privileges and responsibilities conferred on both professions by the respective provincial practice acts. It is unjust because it favours one group of taxpayers (physicians) at the expense of another (dentists). It is also prejudicial to the public interest because it imposes an unnecessary impediment between those who need this care and those who now or in future could render the required services.

(Turn to page 712 for latest developments on Bill C-227.)

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer à cette section du Journal.

Corticosteroid-antibiotic Preparations in Endodontics

To the Editor:

I wish to commend and thank you for the excellent presentation of the paper by Dr. Fiore-Donno and myself on corticosteroid-antibiotic preparations in endodontics (J. Canad. D.A. 32:527, September 1966). We much appreciate your accompanying editorial which will be helpful in forestalling iatrogenic damage.

You may be interested that four recent publications corroborate your statement:

1. Riedel, H. and Hanstein, H. J. Klinische und histologische Untersuchungen über die Wirkung von Corticosteroiden bei der Pulpa-behandlung. (Clinical and histological investigation of the action of corticosteroids in pulp therapy.) Deut. Zahnärztebl. 20:131, 1966.

2. Mjör, I. A. and Nygaard-Ostby, B. Experimental investigations on the effect of Ledermix on normal pulps. J. Oral Ther. and Pharmacol. 2:367, 1966.

3. Maeglin, Von B., Gülzow, H.-J. and Thomann, H.-R. Pulpitistherapie mit Kortikosteroid - Antibiotika - Kombinationspräparaten. (Treatment of pulpitis with corticosteroid-antibiotic preparations.) Deut. Zahnärztl. Zschr. 21:966, 1966.

4. Götze, Von W. Zur Frage der Eindringtiefe des Tetracyclin bei der Behandlung der

Pulpitis mit Ledermix. (Tetracycline penetration in treatment of pulpitis with Leder-mix.) Deut. Zahnärztl. Zschr. 21:974, 1966.

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Geneva, Switzerland.

Children's Dental Plan

To the Editor:

Dr. Hunt is to be commended for outlining so clearly the challenge that Canadian dentists face (J. Canad. D. A. 32:464, August 1966). No doubt he will be misinterpreted by many as one who is recommending fragmentation of the profession.

The obvious and the only sensible way to conquer the caries portion of dental disease in Canadian children is through prevention. When one recognizes that at the present time upwards of 80 per cent of dental caries in children can be prevented with twice yearly multiple topical fluoride treatments in conjunction with fluoridation, then it is ridiculous to suggest that Canada embark on a crash program of training New Zealand type dental nurses in order to fight tooth decay with fillings. What a waste of money! What a waste of time!

The real questions that must be raised at this time are:

1. Are the majority of Canadian dentists aware of the modern developments in caries prevention?

2. Even if they were aware of these developments do they believe in them sufficiently to introduce them into their traditional methods of practice?

My experience has been that for the most part the answer to these two questions is *no*. There may be an excuse for the older dentist; but even some newer graduates who have been thoroughly schooled in preventive dentistry do not apply their knowledge to practice. It has also been my experience in referring young patients to eastern Canada that far more preventive dentistry is being practised in western Canada.

A serious problem blocking more widespread application of preventive dentistry resides in provincial fee schedules. A number of schedules still do not spell out a specific fee for a topical fluoride treatment, let alone one for a diet survey and analysis. The new fee schedule in Alberta is unique since it reflects modern emphasis on preventive dentistry. The items listed in Alberta's new fee schedule can serve as a model for others to follow.

My heartfelt plea at this particular time is simple: "Dentists of Canada: unite through preventive dentistry; we have nothing to lose but our honourable profession!"

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P.O. Box 132, St. Norbert, Man.

THE ROLE OF PREVENTION IN DENTAL HEALTH

Each year the Canadian Dental Association presents a panel discussion on a subject considered to be of immediate importance to the profession. Generally speaking, the subjects chosen have had to do with some aspect of the relation between the profession and the social environment.

For several years the discussion has been directed to the question of the establishment of a national dental health plan as part of a national health plan. At first, following the establishment of the Royal Commission on Health Services, the discussion was conjectural and explored the bases and reasons for such a plan and the possible orientation of the profession to it. After publication of the Report of the Royal Commission the panel was devoted to considering the actual recommendations and, last year, to considering the implication of the report for the profession.

This year the title and subject for the panel was "The Essential Role of Prevention in Dental Health." Our panelists considered in detail the practical application of preventive principles and techniques in private practice as well as in the more general area of public health.

In both areas the panel, in a sense, explored further the relation between the profession and the social environment and thus continued the pattern established over the past several years although in a more specific and technical way.

In its statement on the recommendations of the Royal Commission on Health Services¹ the Canadian Dental Association made these two observations: "It was, however, with some disappointment and frustration that the Association discovered how little emphasis the Commission had placed on preventive dentistry ..." and "In the opinion of the profession, it is more important to prevent disease than to treat it."

How are these statements to be supported by the profession in practice and in the community? Are they merely pious humbug designed to delay as long as possible the implementation of the recommendations of the Royal Commission? What facts and techniques may be marshalled to support these two statements? And, if preventive measures are available, how effective are they?

These are questions which may have occurred in the minds of the profession. They are, I think, valid questions and they demand adequate answers.

That is why the 1966 panel discussion focused on prevention of dental disease. The field of prevention is difficult, if not impossible, to define since almost any procedure which a dentist undertakes clinically is preventive of a more advanced

state of disease or deformity. The panelists, however, drew the line on the near side of the replacement of lost tooth structure. In short, they considered prevention to be those measures which help to maintain the dentition in its native state without the addition of artificial substitutes for tooth structure.

The Canadian Dental Association was fortunate in finding that the Professional Services Division of the Procter and Gamble Company of Canada was also interested in sponsoring a program on preventive dentistry. The Association and the Procter and Gamble Company, therefore, joined forces on this project and I hereby gratefully acknowledge the financial and technical assistance of that company.

P. S. Christie

1. Canadian Dental Association. Statement of the Canadian Dental Association on the recommendations of the Royal Commission on Health Services. May 28, 1965.

Review of developments in preventive dentistry

J. Kreutzer, DDS, BScD, Toronto, Ontario*

This afternoon I wish to trace and highlight some of the developments in preven-

tive dentistry made through the application of basic science knowledge and clinical research from 1930 to the present time. I will consider these developments as they occur in 10 year intervals.



J. Kreutzer

1930-1940

I was first introduced to the term 'Preventive Dentistry' in my undergraduate years in dentistry in the early 1930's and I have seen it develop from a mere term to a philosophy and now to a practical reality. At that time we talked about the change in dental practice from the 'treatment phase' to prevention. But in actuality there were few measures a dentist could employ to practise primary prevention, nor were dental preventive measures available to the public as a whole as they are today. To me the term 'Preventive Dentistry,' and by that I mean primary prevention, lacked substance at that time. It did, however, give lustre to the image of our profession, even though we could not justify it in a practical way. All

dental treatment — the replacement of lost tooth tissue and missing teeth, the correction of malocclusion and treatment of periodontic disease — is a form of preventive dentistry in which we try to prevent the development of further harmful sequelae as a result of existing conditions; but in reality these are 'secondary preventive' measures. Today I wish to consider primary prevention particularly as it relates to the dental caries process.

In the 1930's we were especially interested in the influence of diets rich in calcium and phosphorous and vitamins D and C for the building of caries resistant teeth. I, like many other practising dentists, prescribed large doses of dicalcium phosphate and vitamin D for many patients, both young and old, in the hope of preventing or arresting the caries process; but the results were disappointing. This is not to say that good nutrition is not essential for proper calcification of teeth and bones and for health generally. But at that time, because of our lack of knowledge about some of the nutritional requirements, we did not know the significance of the nutritional element fluoride for the development of caries resistant teeth.

Also in the 1930's, vitamin C was prescribed for the prevention of dental caries and to cure gingivitis. Here again our therapy fell short of the objectives.

We instructed patients how to brush their teeth but we had no scientific basis on which to advise them when to brush. Dentifrices were merely mechanical cleansers and did not contain effective therapeutic agents.

Dental radiographs, particularly bite-wing radiographs, were not utilized to the extent that they should have been as part of our diagnostic procedures.

The calibrated periodontic probe for examination of periodontic pocket development was used by few dentists. Restorative dentistry for children was a neglected area in dental practice.

An important discovery of this era (1931) was that a high concentration of fluoride in drinking water causes a condition known as endemic dental fluorosis or mottled enamel.¹ An even more important finding several years later was that children drinking fluoride-containing

water had a very low incidence of dental caries.²

In the area of dental education, impetus to instruction in preventive dentistry was given in 1936 by the Report of the Dental Curriculum Survey of the American Association of Dental Schools. This report recommended a course of instruction for dental schools to follow.

1940-1950

Now let us consider the period of 1940-50. Two caries activity tests, the lactobacillus count³ and Snyder Test,⁴ had been developed by this time and were coming into use. Although these tests are not completely reliable in testing for caries activity, they do serve as indicators of caries activity for approximately 85 per cent of the cases. They are also useful for explaining to patients some of the biochemical factors involved in the caries process. These tests are particularly valuable for assessing the progress of a dietary caries control program. Patients who follow dietary instructions with care should have reduced lactobacillus counts or reduced glycolytic activity as indicated by the Snyder Test.

Another advance of this period resulted from investigations of bacterial plaques. Although bacterial plaques in relation to dental caries were studied as early as 1897 by J. Leon Williams,⁵ it was not until about 40 years later that Stephan et al⁶⁻⁸ measured the pH in plaques. When a patient was given a 10 per cent glucose rinse, they found that in caries active plaques the pH dropped within two to five minutes to a degree of acidity low enough to decalcify enamel (pH 5 or less). Moreover, the pH remained low for one-half hour or longer before gradually returning to a normal level. This finding contributed to our understanding of the caries process, and it serves as a scientific basis for advising patients when to clean their teeth.

It was in 1940 that further comprehensive research studies^{9,10} were conducted with respect to fluorides and dental health. As a result, the fluoride ion is now recognized and utilized as the great-

est single factor in the primary prevention of dental caries. It was found that mottled enamel was not evident when the water consumed during tooth development contained less than 1.8 ppm of fluoride. An even more important finding was that 1.0 ppm of fluoride in the water practically gave the same reduction in dental caries incidence (40 to 60 per cent) as higher fluoride intake.

On the basis of this knowledge artificial fluoridation of drinking water (1 ppm) was instituted in 1945 for the cities of Brantford, Ontario; Newburgh, New York; and Grand Rapids, Michigan. During 15 years of controlled fluoridation the caries incidence for children 6-16 years of age decreased by 40 to 60 per cent in each city.¹¹⁻¹³

Also at this time 2 per cent sodium fluoride solutions were introduced for topical use. Knutson and Armstrong¹⁴⁻¹⁶ (1943-46) reported the results of their studies which showed that four separate applications of a 2 per cent solution every six months to one year gave a caries reduction for children of 40 per cent or higher.

The 1940's also marked the beginning of the control of dental caries through the use of therapeutic dentifrices. In 1946 the ammonia-urea dentifrice, and in 1948 vitamin K in chewing gum were introduced.

1950-1960

Other so-called therapeutic dentifrices were introduced during the 1950's. These contained penicillin, chlorophyllin or anti-enzyme agents. Although penicillin has a caries preventive effect, the danger of developing penicillin resistant strains of organisms, monilial infections and sensitization of the patient to antibiotics does not justify its use. It was claimed that chlorophyllin would lower the lactobacillus count, relieve non-specific gingivitis and combat mouth odours. The compounds sodium N-lauroyl sarcosinate and sodium dehydroacetate were incorporated into dentifrices for the purpose of inhibiting certain bacterial enzymes involved in caries production. Because of a lack of clinical evidence of their effectiveness the

Council on Dental Therapeutics of the American Dental Association has been unable to approve the foregoing dentifrices and therapeutic agents as caries preventives.

Since about 1954 Muhler and his associates¹⁷ have made numerous studies of the effectiveness of stannous fluoride-calcium pyrophosphate dentifrices. Their most recent report¹⁸ (1966) shows a 42 to 67 per cent reduction in DMF surfaces, depending upon the thoroughness and frequency of brushing. This dentifrice was the first therapeutic dentifrice accepted for listing by the Council on Dental Therapeutics of the ADA (August 1960) and recently it was placed in Group A. Three additional stannous fluoride dentifrices have earned provisional or full acceptance from the ADA during the past four years.

Another advance in preventive dentistry was realized in 1954 when the findings of the Vipeholm study¹⁹ on the cariogenicity of carbohydrate foodstuffs were reported. These showed that the amount, consistency, time and frequency of eating sugar-containing foodstuffs influence the dental caries rate. Caries experience increases with the frequency of eating between-meal food of high sugar content and sticky character. Sugars in solution, particularly when taken at meal time, do not significantly increase the caries incidence. There is a consistent relationship between the length of time that the saliva is sugar-positive and caries activity. Thorough cleansing of the teeth and rinsing the mouth with water immediately after eating hasten the clearance of sugars from the teeth and saliva and thereby help to reduce caries activity.

In 1955 Muhler²⁰ introduced an 8 per cent stannous fluoride solution for topical application. In 1962 Gish, Muhler and Howell²¹ reported their findings from a five year study on children. These showed a 40 to 60 per cent reduction in the caries rate resulting from the use of this agent.

In 1950 Kite, Shaw and Sognnaes²² reported that caries did not develop in rats when substrate (sugars) was eliminated from the mouth by stomach-tube feeding. By feeding a cariogenic diet to germ-free rats Orland,²³ in 1954, found that these

animals did not develop caries. From the evidence of these two experiments tooth decay appears to be dependent upon two main factors — bacteria and a substrate. Present day dietary programs of carbohydrate restriction for the control of dental caries are based on these findings; and where patients' co-operation is good, the caries rate is markedly reduced by this procedure.

1960-1966

In the last few years a fluoride-phosphate solution (fluoride concentration of 1.23 per cent in 1 per cent orthophosphoric acid) has been introduced for topical application. In 1963 after a two year study, Brudevold and Wellock²⁴ reported that the 115 children who had received single applications of this solution once a year for two years had approximately 70 per cent fewer carious surfaces than the 113 children who served as controls.

More recently a fluoride-gel has been made available for topical use. At present there is no clinical evidence to show the effectiveness of this preparation. The poor flow qualities of the material into interproximal areas and fissures, where fluorides are most needed, may reduce its effectiveness.

Several reports^{25,26} indicate a 15 to 20 per cent additive benefit from fluoride dentifrices for teeth that have been previously treated with fluoride solutions. An approximate 70 per cent reduction in caries incidence is reported when clinical procedures consist of a prophylaxis with a fluoride paste, followed by topical applications of 8 per cent stannous fluoride solution, and brushing teeth with a fluoride dentifrice three times daily.²⁷

In 1953 Adler and Straub²⁸ did a pre-fluoridation baseline study of caries incidence in two Hungarian towns. They found a marked difference in caries prevalence. The town with lower caries rate had a high proportion of molybdenum in its drinking water.

In 1960 Ludwig et al^{29,30} made a similar prefluoridation baseline study at Napier and Hastings in New Zealand. The Napier children showed a lower DMF index and

it was found that their teeth contained a higher percentage of molybdenum than those of Hastings children. This phenomenon was attributed to eating vegetables that contained large amounts of molybdenum.

Reports of studies³¹⁻³³ on the use of fluoride supplements indicate significant caries reductions. Supplements can be recommended under the following conditions:

(a) the water fluoride content must be less than 0.7 ppm;

(b) dosage of the supplement must be adjusted on the basis of the natural fluoride ion content of existing water and the age of the individual;

(c) reliable, exacting, intelligent co-operation in the individual household is mandatory; and

(d) administration should be commenced at infancy and terminated at approximately 12 years of age. For optimal benefits it is essential to ingest fluoride throughout the period of tooth formation.

RECOMMENDATIONS FOR THE PREVENTION AND CONTROL OF DENTAL CARIES³⁴

"Methods of caries prevention have two objectives: the formation of tooth enamel possessing the greatest possible resistance to acid dissolution, and the restriction of carbohydrate substrate which dental plaque bacteria can utilize to form acids which in turn demineralize tooth tissues.

"To attain the first objective:

"(a) Consume optimally fluoridated water (1 ppm), particularly during the period of tooth mineralization. Communal water fluoridation is the cheapest and most effective way of ensuring this. In areas where this is not feasible and where the fluoride content of drinking water is known to be less than 0.7 ppm alternative methods of fluoride administration for children from the time of infancy to 12 years of age should be prescribed.

"(b) Apply topical fluoride solutions to the teeth of children and young adults every six or 12 months, particularly when the teeth have developed during a period of low fluoride intake.

"To attain the second objective:

"(a) Eliminate between-meal snacks of sweet foods.

"(b) Reduce the intake of carbohydrates, particularly foods containing sugar, at regular meal times.

"(c) End each meal with a food which has a cleansing effect on the teeth and stimulates the flow of saliva, such as raw apple, pear, carrot, celery.

"(d) Brush the teeth thoroughly with a stannous fluoride dentifrice within 10 minutes of eating. If this is not possible, rinse the mouth vigorously with water. Whenever practical, judicious cleansing of the interproximal surfaces of teeth with dental floss is recommended.

"(e) Promptly restore any previously decayed teeth. This will drastically decrease the number of acid producing organisms and will eliminate areas of food lodgement."

Eighty per cent or more of the caries process can be prevented if a dentist applies up-to-date scientific knowledge of prevention and techniques and obtains the patient's full co-operation in respect to oral hygiene, diet, and regular recall visits. In those instances where the initiation of caries cannot be prevented, modern operative techniques can be employed without sacrificing too much tooth tissue. No one needs to lose a tooth through dental caries today, nor should extensive restoration be necessary if known preventive measures are instituted early in life. The need for full-crown coverage will thus become a thing of the past.

Practising preventive dentistry permits the dentist to serve two to three times as many patients as in the past and the results are gratifying to the patient as well as the dentist. It is just a matter of accepting the right philosophy of dental practice — a philosophy of prevention put into action and made real.

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1. Churchill, H. V. Occurrence of fluorides in some waters of the United States. *Ind. Eng. Chem.* 23:996, 1931.
2. Dean, H. T. Endemic fluorosis and its relation to dental caries. *Pub. Health Rep.* 53:1443, 1938.
3. Hadley, Faith, P. (Crowley, Mary, Bunting, R. W. and Jay, Philip.) A quantitative method for estimating *Bacillus acidophilus* in saliva. (re caries) *J.D. Res.* 13:415, 1933.
4. Snyder, M. L. A simple colorimetric method for the estimation of relative numbers of

- lactobacilli in the saliva. *J.D. Res.* 19:349, 1940.
5. Williams, J. L. A contribution to the study of pathology of enamel. *D. Cosmos* 39:169, 269, 353, 1897.
6. Stephan, R. M. Hydrogen ion concentration of the dental plaque. *J.D. Res.* 17:251, 1938.
7. Idem. Changes in hydrogen-ion concentration on tooth surfaces and in carious lesions. *J.A.D.A.* 27:718, 1940.
8. Stephan, R. M. and Miller, B. F. Quantitative method for evaluating physical and chemical agents which modify production of acids in bacterial plaques on human teeth. *J.D. Res.* 22:45, 1943.
9. Dean, H. T., Jay, Philip, Arnold, F. A., Jr. and Elvove, Elias. Domestic water and dental caries. II. A study of 2,832 white children, aged 12-14 years, of 8 suburban Chicago communities, including *Lactobacillus acidophilus* of 1,761 children. *Pub. Health Rep.* 56:761, 1941.
10. Dean, H. T., Arnold, F. A., Jr. and Elvove, Elias. Domestic water and dental caries. V. Additional studies of the relation of fluoride domestic waters to dental caries experience in 4,425 white children, aged 12 to 14 years, of 13 cities in 4 states. *Pub. Health Rep.* 57:1155, 1942.
11. Arnold, F. A., Jr., Likins, R. C., Russell, A. L. and Scott, D. B. Fifteenth year of the Grand Rapids fluoridation study. *J.A.D.A.* 65:780, 1962.
12. Ast, D. B. and Fitzgerald, Bernadette. Effectiveness of water fluoridation. *J.A.D.A.* 65:581, 1962.
13. Brown, H. K. and Poplove, Myron. Brantford-Sarnia-Stratford fluoridation caries study: final survey, 1963. *J. Canad. D.A.* 31:505, 1965.
14. Knutson, J. W. and Armstrong, W. D. The effect of topically applied sodium fluoride in dental caries experience. *Pub. Health Rep.* 58:1701, 1943.
15. Idem. The effect of topically applied sodium fluoride on dental caries experience. II. Report of findings for second study year. *Pub. Health Rep.* 60:1085, 1945.
16. Idem. The effect of topically applied sodium fluoride on dental caries experience. III. Report of findings for the third study year. *Pub. Health Rep.* 61:1683, 1946.
17. Muhler, J. C., Radike, A. W., Nebergall, W. H. and Day, H. G. Effect of stannous fluoride-containing dentifrice on caries reduction in children. *J.D. Res.* 33:606, 1954.
18. Bixler, David and Muhler, J. C. Effectiveness of a stannous fluoride-containing dentifrice in reducing dental caries in children in a boarding school environment. *J.A.D.A.* 72:653, 1966.
19. Gustafsson, B. E., Quensel, C.-E., Lanke, Lisa S., Lundqvist, Claes, Grahnén, Hans, Bonow, B. E. and Krasse, BO. Vipeholm dental caries study. The effect of different levels of carbohydrate intake on caries activity in 436 individuals observed for five years. (Sweden) *Acta Odont. Scandinavica* 11:232, 1954.
20. Muhler, J. C. Topical application of stannous fluoride. *J.A.D.A.* 54:352, 1957.
21. Gish, C. W., Muhler, J. C. and Howell, C. L. New approach to the topical application of fluorides for the reduction of dental caries in children: results at the end of five years. *J. Den. Children* 29:65, 2nd quart, 1962.
22. Kite, O. W., Shaw, J. H. and Sognaes, R. F. The prevention of experimental tooth decay by tube-feeding. *J. Nutr.* 42:89, 1950.
23. Orland, F. J., Blayney, Roy, Harrison, R. W., Reyniers, J. A., Trexler, P. C., Wagner, Morris., Gordon, H. A. and Luckey, T. D. Use of the germfree animal technic in the study of experimental dental caries. I. Basic observations on rats reared free of all microorganisms. *J. D. Res.* 33:147, 1954.
24. Wellock, W. D. and Brudevold, F. Study of acidulated fluoride solutions—II. The caries inhibiting effect of single annual topical applications of an acidic fluoride and phosphate solution. A two year experience. *Arch. Oral Biol.* 8:179, 1963.
25. Muhler, J. C. Combined anticariogenic effect of a single stannous fluoride solution and the unsupervised use of a stannous fluoride-containing dentifrice. *J. D. Res.* 38:994, 1959.

26. Idem. Combined anticariogenic effect of a single stannous fluoride solution and the unsupervised use of a stannous fluoride-containing dentifrice. II. Results at the end of two years. *J. D. Res.* 39:955, 1960.
27. Bixler, David and Muhler, J. C. Effect on dental caries in children in a nonfluoride area of combined use of three agents containing stannous fluoride: a prophylactic paste, a solution and a dentifrice. *J.A.D.A.* 68:792, 1964.
28. Adler, P. and Straub, J. Water-borne caries-protective agent other than fluorine. *Acta Med. Acad. Sci. Hung.* 4:221, 1953.
29. Ludwig, T. G., Healy, W. B. and Losee, F. L. An association between dental caries and certain soil conditions in New Zealand. *Nature (Lond.)* 186:695, 1960.
30. Ludwig, T. G., Malthus, R. S. and Healy, W. B. An association between soil conditions and dental caries in rats. *Nature (Lond.)* 194:456, 1962.
31. Arnold, F. A., Jr., McClure, F. J. and White, C. L. Sodium fluoride tablets for children. *D. Progress* 1:3, Oct. 1960.
32. Wrzodek, G. Ist eine Kariesprophylaxe mit Fluor Dragees erfolgversprechend? *Zahnarztl. Mitt.* 7:1, 1959.
33. Nikiforuk, Gordon and Fraser, Donald. Fluoride supplements for prophylaxis of dental caries. *J. Canad. D.A.* 30:67, 1964.
34. Burgess, R. C. and Kreutzer, J. Caries, prophylaxis and fluorides. *Applied Therapeutics* 8:760, 1966.

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Preventive dentistry in the Royal Canadian Dental Corps

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No one will disagree that it is better to prevent oral disease than to attempt to cure it after it has developed. We also know that the prevalence of dental disease is high, and the dental profession does not have the treatment resources to satisfy existing or projected needs for dental treatment. Furthermore, much of the oral disease which now exists could have been prevented. These facts point to the need for a change in emphasis in dental practice from correction, restoration and repair to prevention.

Recognizing this need, the Royal Canadian Dental Corps has made some progress in providing a preventive service and hopes to increase this effort in the future. My purpose is to outline briefly the Corps approach to preventive dentistry and our activities in this field.

AUXILIARY DENTAL PERSONNEL

Auxiliary dental personnel play an important role in preventive dentistry in the RCDC. Because of a continuing shortage of dental officers and because

many preventive procedures do not require the training and level of skill that a graduate dentist possesses, preventive



Lt-Col. D. H. Protheroe

tasks are delegated to dental auxiliaries wherever possible. The most important in this regard is the clinical technician who functions entirely in the preventive field and is the RCDC equivalent of the civilian dental hygienist. Two others, the dental assistant and the clinical supervisor (therapist) also perform some preventive tasks.

In primary or true prevention the clinical technician (or military dental hygienist) is trained to carry out most of the procedures involved in health promotion as well as many of the specific measures for preventing the occurrence of oral diseases. He provides dental health education for servicemen and children attending Department of National Defence schools and assists in the annual dental health education program conducted at every RCDC clinic. The specific preventive measures he performs include oral prophylaxis using a stannous fluoride prophylaxis paste, topical applications of stannous fluoride, chairside oral hygiene instruction and diet counselling.

In secondary prevention, which is early diagnosis and prompt treatment, the clinical technician is trained to expose all types of dental radiographs. He conducts dental surveys or screening examinations of servicemen which the dental officer can use as a basis for patient selection. He also scales and polishes teeth as directed by a dental officer in the treatment of early periodontic disease.

Our basic auxiliary, the dental assistant, receives training in oral hygiene techniques and dental health promotion.

The clinical supervisor, our newest auxiliary, is a clinical technician who has been trained to perform certain restorative and treatment procedures. This auxiliary also makes a contribution to preventive dentistry. First of all, because he is a trained clinical technician, he can perform any of the preventive functions of that trade. In addition, he is trained to fabricate mouthpieces for protection against traumatic injuries and make study casts, a valuable diagnostic aid.

These auxiliaries do not function independently but are part of dental clinic teams directed by dental officers who co-ordinate their activities. In this way the Corps is able to provide a more effective

preventive service than would otherwise be possible. At the same time, dental officers can concentrate on those preventive and treatment procedures that only they can perform.

PREVENTIVE ACTIVITIES

Preventive activities in the Corps fall into two categories: oral health promotion and prevention in clinical practice.

Oral Health Promotion. — Every RCDC clinic is responsible for carrying out a program of oral health promotion for its patient commitment. The dental officer in charge of the clinic designs the program to suit the local situation, but much of the actual work may be done by auxiliary dental personnel. The objectives of these programs are threefold:

The first objective is to make oral health a valued personal and military asset. We want each serviceman to appreciate the value of good oral health so that he will practise effective oral hygiene and recognize the need for preventive and treatment procedures. In addition, individuals who are in command must be made to realize the importance of oral health to the men under their command so that they will encourage their men to practise home care measures and seek adequate dental care.

A second objective is to promote understanding and effective use of the dental services that are available. Oral health promotion must also build the serviceman's confidence in dental personnel and in the dental services that are provided. Once established, this trust becomes a potent educational factor and assists in the provision of a more effective dental service through the co-operation that results from mutual respect.

The final objective is to help servicemen acquire competence in carrying out prescribed home care measures. The reasons for this are obvious.

The effectiveness of the oral health promotion programs carried out at RCDC clinics is difficult to measure statistically. We are convinced, however, that they have been very successful and, if nothing

else, they have certainly enhanced the respect that servicemen have for RCDC personnel and the dental services they provide.

Fluoridation. — Another very important preventive measure is fluoridation. I am pleased to report that the Minister of National Defence recently approved the fluoridation of all military base water supplies. This measure will be implemented as soon as possible. Fluoridation will be of great benefit to the children of servicemen and will permit them to enjoy its uninterrupted benefits as they move from base to base throughout the country.

Prevention in Clinical Practice. — We have two important objectives in this regard — one short-range and one long-range: (1) Our short-range objective is to provide as many preventive services as possible, particularly at the primary and secondary levels of prevention. (2) The long-range objective is to train and motivate dental officers to conduct preventive clinical practices.

Some statistics reflect progress in attaining our short-range objective. For example, in 1965 over 40,000 oral prophylaxes were performed. Most of these included comprehensive oral hygiene instruction. In addition, 4,000 stannous fluoride applications were carried out on recruits and 500 mouth protectors were fabricated for personnel engaged in contact sports. As aids to early diagnosis 99,000 radiographs were taken, 90,000 servicemen were screened for dental disease and 30,000 comprehensive oral examinations were performed.

These, of course, were not the only preventive procedures performed, but they show that we are making fair progress. They also indicate much remains to be accomplished. This leads to the long-range objective which is to train and motivate dental officers to conduct preventive practices.

One of the most difficult problems in attempting to provide a really effective preventive service is getting the dental officers themselves to practise preventive dentistry. The use of auxiliary dental personnel is good up to a point and

accomplishes a great deal, but the dental officer, as central figure in the dental team, must provide the leadership and the impetus required. Every dental officer knows the importance of preventive dentistry and practises it to some extent, but not many run truly preventive practices. The accent is still on correction, restoration and repair; primary or true prevention often receives only secondary consideration. I believe this situation is also very prevalent in civilian practice. It may be due, in part, to the lack of emphasis that was formerly given to preventive dentistry during undergraduate training.

At the RCDC School we are attempting to correct this situation by training dental officers to conduct preventive practices.

Sumnicht¹ describes preventive practice as one in which patient care is based on a consideration of all available knowledge concerning the nature, aetiology, prevention and treatment of oral disease and the application of proven preventive, therapeutic and corrective measures in such a way and in such a sequence as to achieve the optimum possible oral health for each patient. In other words, the dentist asks himself: "How will the care I give this patient now affect his oral and total health five or 10 years from now?" He then plans his treatment accordingly.

In such an approach treatment planning is the key to preventive practice,² and priority is given to measures that can control disease processes before any attempt is made to restore or repair the damage of past disease.

The objective of the treatment plan is to establish a healthy oral environment before starting restorative procedures. One of the most ridiculous practices in clinical dentistry is to place restorations in teeth repeatedly while doing nothing to control the disease that makes the restorations necessary in the first place. Even worse is the effort expended in restoring individual teeth while ignoring periodontic disease which, if left uncontrolled, may result in the loss of all teeth.

In preventive practice a treatment plan gives prior consideration to the supporting tissues of the teeth, to caries control

methods, to occlusal relationships, and to education of the patient in the rationale and methodology of proper oral hygiene. In this way a solid foundation is laid for the patient's future oral health. Needed restorative treatment can then be undertaken with reasonable assurance that it is not just a stop on the road to loss of all of the teeth.

We hope that this approach will lead eventually to a vast improvement in the oral health of Canadian servicemen. We

know, however, that changing long established habits is a slow and difficult process.

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1. Sumnicht, R. W. Preventive dentistry and dental practice. *Practical Dental Monographs* July-August 1965, p. 1.
2. Bernier, J. L. The army preventive dentistry program. In: *Symposium Applied Preventive Dentistry*. The Curators, University of Missouri, Columbia, c1965.

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What can the public health dentist do for preventive dentistry?

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Saskatchewan Government photo



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President Christie has spoken of the dynamic society in which we live where external stimuli accelerate change within our profession to meet the rapidly growing demands confronting us. Dr. Kreutzer has given a concise presentation of current scientific knowledge and its application to the prevention of dental caries, periodontic disease and malocclusion. Colonel Protheroe has demonstrated the methods by which at least some of this knowledge is applied in clinical practice in the Royal Canadian Dental Corps. This arousal of public awareness within our profession for community health is most gratifying to someone trained in public health dentistry.

Dental research has now provided a substantial foundation of knowledge upon which logical preventive dental programs may be based. Preventive measures fall into four categories, as explained in the

Statement of Policy on Dental Public Health adopted by our Canadian Dental Association:¹ (1) those which are the responsibility of the individual; (2) those which are the normal responsibility of the family; (3) those which are the responsibility of the community; and (4) those which can be achieved through the dental profession and its auxiliaries.

The dentist and his ancillary staff occupy position number four in the rank order of providing measures for prevention of dental disease. To be effective our present scientific knowledge in the prevention of dental disease requires diligent individual application beginning in the home and extending to the community.

The public health dentist has a monopoly of a kind on certain aspects of mass preventive dentistry. His is a concern for the dental health of all people within the population which he serves. Private dental practitioners are denied the means of mass dental health promotion by the ethics of our profession. A private dental practitioner is in competition with others of his kind in his geographic area. His adoption of mass education techniques would undoubtedly be branded immediately as advertising in the solicitation of patients.

The objectives of the specialist in dental public health are synonymous with those of the dental profession engaged in private practice and differ only in the number of patients involved. Present day dental practice is regulated to provide services for individuals even though a dentist may frequently take the responsibility for entire families. Therapeutic service rightfully belongs in the hands of the private dentist. Public health dentistry is most vitally concerned with the prevention and control of dental caries, periodontic disease and malocclusion.

Society has demonstrated an appreciation for the necessity of dental care as an integral part of general health care. The threat of government intervention in the provision of dental treatment services is evident in the recommendations of the Hall Commission Report.² With but few exceptions Canadian dentists have as a result become more acutely aware of the

need to revolutionize dental practice by giving greater emphasis to prophylactic dental service so as to reduce the volume of unmet dental treatment needs. It makes good sense therefore for public health dentists and those in private dental practice to work together much more closely for the mutual benefit of the public and the profession. How then can public health dentists help the private practitioner in his profession to more fully meet the dental needs of the Canadian people?

A dentist with postgraduate training in public health receives formal instruction in statistics and epidemiology. This enables him to survey and determine the community's dental health needs and resources. Furthermore, training in administrative practice permits him to work with communities and groups of dentists in planning the most suitable means of making additional dental care available where needed.

He is able to advise and assist in the design, development, administration and evaluation of dental health programs within the community. Provision for regular evaluation is undoubtedly the most salient feature of a well designed dental health program.

A competent public health dentist should be in a position to evaluate dental services in terms of their ability to meet community needs and thereafter advise and assist in the extension of undergraduate training of both dentists and dental auxiliaries.

On the basis of his postgraduate training and experience a public health dentist can be expected to have a broad understanding of the behavioural sciences as they affect health promotion and prevention of dental diseases and their relationship to individual, to family and to community responsibilities.

His training provides the public health dentist with a knowledge of the principles of dental health education as well as the methods and media which are available. He should be competent to evaluate the content of available material and advise and assist in the development of dental health education programs.

Formal training as well as experience

gained in working with groups of people confer on the public health dentist knowledge and skills in the field of public and human relations. He is in a position to work with the forces that mould and shape public opinion. Dentists should not overlook the necessity of working with political personalities to achieve a more favourable climate for our profession.

The public health dentist can also evaluate results of basic dental research and develop field trials for testing its application in practical situations.

The public health dentist has rightfully been called the specialist in preventive dentistry. Why then have we not been more effective in our achievements?

In Canada dentistry was not invited to join the ranks of public health until the end of World War II.³ The history of the association of the professions of medicine and nursing with public health in Canada is of very much longer standing. Only since the end of the last World War have local, provincial and federal health departments modified their organizational structure to include dental administrative and consultative units. And only since that time have schools of public health opened their doors to dentists.

These outward manifestations have been relatively easy to achieve in all 10 provinces. But a closer inspection will show that the dentist in public health has been assigned to a low level in the administrative hierarchy. Budgetary allocations support a very minimum of personnel and dental programs are sustained at a bare subsistence level. Physicians by tradition and by legislation occupy the policy-making positions in Canadian public health. Many public health dental programs in Canada did not originate with a dental public health officer. Preventive dentistry has been given lip service by public health physicians in Canada but very few physicians have any conception of its true meaning.

Dentists in private practice, too, have erred for until very recent times they have viewed public health dentists with suspicion. The very nature of some public health dental programs in Canada, because of their basic orientation to treat-

ment, appears as a potential threat to the man engaged in private dental practice. As surely as there is a need for revolution in dental practice, there is a much greater need in Canada for revolution in the administrative organization of public health. No longer is there any need for the paternalistic protection of the discipline of medicine. Public health dentists should be unshackled to plan and work with those in private practice to upgrade the standard of dental health in this country.

True or primary prevention as described by Colonel Protheroe has two basic components: (1) measures which supply specific protection to oral structures, and (2) health promotion to stimulate a sense of individual responsibility for health care. The statement of the Canadian Dental Association on the Recommendations of the Royal Commission on Health Services⁴ emphasizes the urgency of immediate application of primary prevention as a prerequisite to any form of prepaid dental care. This is necessary in order to reduce the incidence of dental disease to a level where treatment can effectively meet the anticipated demand for dental care. Yet in today's organization of dental practice specific protection and health promotion are largely denied to the public because those procedures do not justify an adequate fee. Does this shortcoming not point to the necessity of investigating alternative methods of providing dental care to all Canadians in a manner consistent with the dignity and autonomy of the dentist?

Allow me to recapitulate the facts which confront us:

On the one hand the public clamours for more professional care at less cost. The legislative side of governments derive singular strength from such expressed wishes of the electorate. Moreover, all major political parties now openly subscribe to government involvement in providing health care for Canadians. And the administrative side of governments, particularly those in authority within health departments, without exception are attuned to dental treatment.

On the other hand Canadian dentists are alert to the need for change.⁴ There

is, moreover, abundant evidence that primary preventive measures are effective in reducing the incidence of dental disease.⁵ Furthermore, trained auxiliary dental personnel under supervision are effective in carrying out certain of the more technical procedures.^{6,7} Lastly, some so-called preventive dental programs operated by government health departments have resulted in the development of very mediocre treatment programs which fall far short of meeting public need.

As a solution to this dilemma we might well look again to our universities for aid. As an employee of a university a public health dentist, working closely with other members of the dental faculty, would enjoy relative freedom from the imposition of antiquated concepts by an older health discipline. Furthermore, applied research conducted beyond the protective walls of a dental school, and using student participation in providing dental health services under adequate supervision on a broad population base, could be immensely beneficial to students and community alike. A practical demonstration of the effectiveness of such primary prevention to the electorate

and to astute sensitive politicians cannot go unheeded for long. Lastly, the lesson offered by student and dental faculty involvement in the community can give direction to the extension of undergraduate training of dentists and dental auxiliaries.

Given this opportunity, the public health dentist can make his finest contribution by bridging the present gap between the public and his dental colleagues in private practice.

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1. Canadian Dental Association. Policy statement on dental public health. Adopted in 1956 and revised in 1961.
2. Canada. Royal Commission on Health Services. 1964—Vol. I. Ottawa, Queen's Printer, 1964.
3. Brown, H. K., Yeo, D. J. and Pownall, K. F. Public health and the dental profession. *J. Canad. D. A.* 32:649, 1966.
4. Canadian Dental Association. Statement of the Canadian Dental Association on the recommendations of the Royal Commission on Health Services. May 28, 1965.
5. Canadian Dental Association. Brief submitted to the Royal Commission on Health Services by the Canadian Dental Association. March 1962.
6. Baird, K. M., Shillington, G. B. and Protheroe, D. H. Pilot study on the advanced training and employment of auxiliary dental personnel in the Royal Canadian Dental Corps: preliminary report. *J. Canad. D. A.* 28:627, 1962.
7. Baird, K. M., Purdy, E. C. and Protheroe, D. H. Pilot study on advanced training and employment of auxiliary dental personnel in the Royal Canadian Dental Corps: final report. *J. Canad. D. A.* 29:778, 1963.

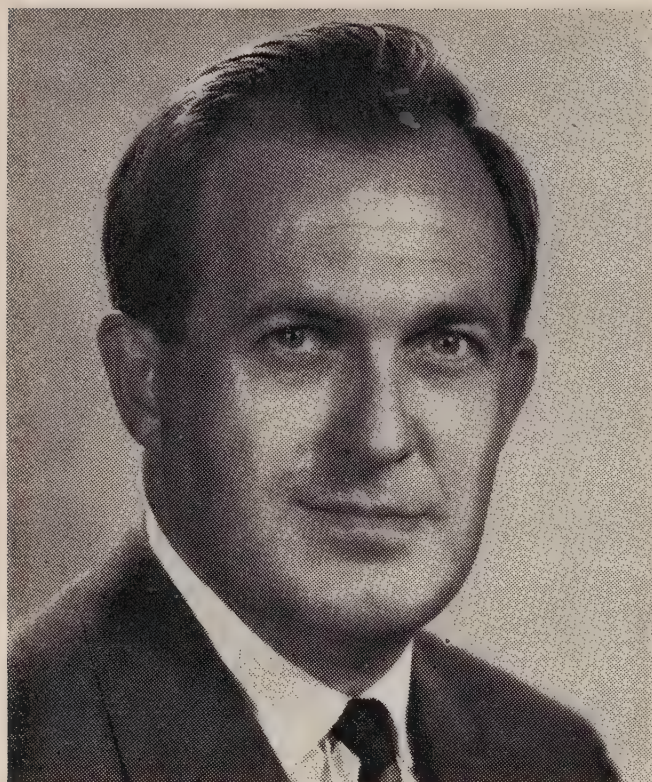
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Preventive dentistry in general practice

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To observe a healthy mouth with little or no evidence of dental caries, a healthy periodontium and mucosa, and well developed arches with proper occlusal relationship is a pleasure all too seldom experienced. To realize that this spectacle could well become the norm within a decade or two is not solely wishful thinking. Advances in dental techniques

have given results that were undreamt of a decade ago, but unfortunately most of these take the form of replacements or restorations of lost tissues. The true picture of health is not derived from substitution for missing or damaged structure but from sound healthy tissues themselves. We now have preventive measures that can be recommended and practised



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with full assurance of their effectiveness. It is therefore time that the profession as a whole progressed from its preoccupation with restorative procedures and focused its attention on control of aetiological factors.

Practical application of preventive dentistry embraces caries control, interceptive and preventive orthodontics, reduction and treatment of periodontic disease, dental accident prevention, and early diagnosis of malignant lesions. Preventive dentistry has emerged as a positive health service destined to occupy a progressively greater share of the hours of clinical practice. Moreover, the energetic application of these measures tends to make dental practice a health-orientated rather than a disease-orientated undertaking.

Our younger patients even know that the practitioner now has positive aids in prevention rather than the "don't do this" and "don't do that" approach of the past. One young ten year old, asked to write a health essay on the care of teeth, came up with these three rules: (1) see your dentist regularly; (2) brush your teeth after every meal; and (3) watch out for the shovers at the school drinking fountain.¹

Any dentist can conduct a preventive program that will bring rewards to the patient and to himself. He can do this regardless of the size of his staff, and he can pursue this objective outside as well as within the confines of his office. The philosophy, procedures and techniques here described are currently applied in my practice.

Dental caries is almost a universal disease of the human race. Its effective control would be a major progression toward optimum dental health. The caries process may be quite clear to the individual practitioner. But the chain of factors must be carefully explained to the patient in plain language so that he may understand how certain foods plus mouth organisms produce acid. The resultant acid plus dental plaque and susceptible tooth structure are necessary for the occurrence of dental caries. Alteration of the food intake means diet control. Correction of the causative agent — the chemical-bacterial film — either means its removal by proper oral hygiene procedures or changing the nature of the film or preferably both. Apart from water fluoridation, the most effective methods of caries control are therefore the control of food intake (diet), the removal of the chemical-bacterial film (oral hygiene) and alteration of the chemical nature of this film (topical applications of anticariogenic compounds and the use of dentifrices that alter the nature of the plaque).

Diet control requires motivation on the part of the parent and the child. The desired motivation is not easily attained but a real effort must be made to substitute good dietary habits for deleterious ones so that general health, periodontic and gingival status, and caries experience may be improved. Patients who exhibit suspected nutritional deficiencies or excesses should receive a diet analysis from which specific recommendations may be made. The patient who substitutes sweet foods for a balanced food intake should be taught the requisites of a good diet and given pamphlets for home study.

The teen-age group requires special consideration because it has been shown that the average American high school

freshman eats 7.1 times a day while girls eat 6.3 times a day. The students who ate most frequently also did not eat as well at mealtime and were inclined to substitute carbonated beverages for milk and fruit juices.² In this same survey high school freshman boys brushed their teeth only 0.6 times per day for an average of 40 seconds and girls brushed their teeth 1.1 times a day for an average of 72 seconds. Similar figures can be substantiated by the mother of the average teen-age boy. Moreover, nearly everyone brushes his teeth but few really clean the teeth. A few patients 'overbrush' but we all tend to 'underclean.'

It is of the utmost importance that the patient be shown actual accretions of bacterial plaque. This can be demonstrated by a disclosing dye. Such dyes are available in tablet or solution form. The solution is preferable for office use. Before prophylaxis, the teeth are stained with the disclosing dye. After rinsing, the patient is shown the stained areas. These represent not only food debris but also the chemical-bacterial film in areas consistently neglected in the brushing procedure. The patient is taught the brushing technique and for interproximal cleansing he is instructed in the use of unwaxed dental floss.³ The patient is then given eight stain tablets and a disposable mouth mirror so that areas of plaque formation may be detected in the home care program.

The advent of effective communal and professional preventive measures has induced some practitioners to relegate oral hygiene in the younger patient to a lower level of importance, but to do so is to neglect the opportunity for education in proper oral hygiene habits that are so necessary for the control and prevention of periodontic and gingival disease in later years. The patient should be supplied with the prescribed toothbrushes³ and dental floss³ and given a booklet describing what he needs to know to help control dental caries and periodontic disease.⁴ "Toothbrushing retards the onset of gingivitis, reduces its incidence, restores gingival health and stippling, reduces plaque and accumulated debris and diminishes calculus. Gingivitis leads to periodontic disease and to tooth loss."⁵

From the standpoint of periodontic health and caries, adequate oral hygiene is therefore a major interrupting factor in the progression of dental disease.

If the patient has crevices or pockets that penetrate beyond acceptable depths then, according to the dictates of the problem, he is taught how to use the interproximal stimulator to stimulate and to mould the interproximal tissues. The use of an irrigation device may be recommended to cleanse certain areas such as root trifurcations adjacent to splints or pontics. The patient with fixed restorations is shown how to introduce dental floss under the pontics and supplied with a device to thread the floss through the interproximal areas of the pontics.

Water fluoridation reduces caries by as much as 60 per cent in children who consume fluoridated water during the first eight years of life. This benefit persists in adult life. There is evidence that fluoride is also absorbed into the dental plaque of children and adults who drink fluoridated water.

We can enhance the benefits of fluoridation, or in non-fluoridated areas equal these benefits, by the topical application of fluoride solutions. I start this as early as the child's co-operation will permit and prescribe it for all patients, children and adults who develop carious lesions or who have fixed orthodontic appliances. After a thorough prophylaxis, utilizing a paste containing additional fluoride, I use unwaxed dental floss to cleanse the interproximal surfaces of plaque. Then after a thorough rinsing I apply the fluoride solution for the required time.

The patient is taught, and continuously reminded at subsequent visits, to use an approved fluoride dentifrice. These approved dentifrices are named to the patient so that no doubt can remain about the recommended brands.

We dispose of practical and simple means of caries prevention that match the benefits of water fluoridation. The application of these methods may not be as economical or as simple as water fluoridation but when their effects are added to the benefits from fluoridation we can achieve caries reductions of as much as 81 per cent. This triple fluoride approach (fluoride prophylaxis paste,

topical fluoride solution and use of an approved fluoride-containing dentifrice) combined with water fluoridation approaches the realm of caries prevention rather than caries control. Caries reductions of this magnitude have also been achieved in adults.⁵ An interesting sidelight is that topical application of tin zirconium hexafluoride, a material not yet available for professional use, has shown caries reduction to the extent of 80-90 per cent.

At this point I must record some personal observations about the advantage conferred by preventive measures upon my own practice. Toronto's water supply has only been fluoridated for approximately two years. Consequently, there is no observable benefit from that source as yet. However, I have been applying topical fluoride solutions for nearly seven years and I seldom see Class III, IV or V carious lesions in patients who have been on the preventive program for a few years. Child patients who have received topical fluoride therapy for the longest period have little interproximal caries. Moreover, the number of children requiring only occlusal restorations is increasing. Preventive measures are changing the nature of dental practice and bringing caries under control.

I also foresee a growing role for the general practitioner in the prevention of malocclusion. Studies at the Orthodontic Research Clinic at Burlington, Ontario, and at Orangeville, Ontario, have demonstrated the benefits of periodic supervision of growth and development and serial treatment.⁶ Whereas 39.8 and 31.9 per cent of untreated 12 year old children required advanced orthodontic treatment, only 7.2 per cent of children undergoing serial treatment required such care. Much of this difference may be attributed to preventive services that could be rendered by general practitioners. These services encompass:

1. Caries control;
2. Habit control;
3. Space maintenance;
4. Space regaining;
5. Early detection of supernumerary, missing and retained teeth;
6. Judicious grinding or minor tooth movement to prevent improper occlusal

development;

7. Early detection and correction of simple crossbites;

8. Detection and guidance of ectopic eruption; and

9. Timed or serial extractions.

Proper performance of these services requires a complete series of radiographs taken at the proper age, diagnostic casts and the development of a treatment plan combined with periodic observation of the patient.

Motivating parents to seek preventive and interceptive treatment should be part of the educational program of any practice. The parents' interest and co-operation is secured by pointing out the functional and aesthetic benefits which accrue to the child and the likely reduction in the necessity and the duration of terminal orthodontic treatment.

One of the principles of primary preventive dentistry is that diagnosis should be early. This is of paramount importance in the detection of malignant oral lesions. Early oral cancer is not typical and may resemble other common abnormalities of the mouth. In its early stages oral cancer also causes no pain or bleeding. Moreover, the survival rate is twice as good for primary lesions under 2 cm.⁷ The cytological smear is therefore indicated for all abnormalities that appear innocent or doubtful.

It is reported that only 26 per cent of Ontario dentists use the cytodetection service made available through the University of Toronto and supported by the Ontario Cancer Treatment and Research Foundation. Of 2,244 satisfactory smears that were submitted between May 15, 1964 and May 14, 1966, 97 were classified as suspicious and possibly malignant, 16 were highly suggestive of malignancy, and 17 were positive for malignant cells. Twenty-one squamous cells cancers were ultimately detected by smears and confirmed by biopsy. Of these 21 cancers only seven were clinically diagnosed. The other 14 cancers disclosed by smears were likely detected earlier than would have been possible otherwise and consequently provided an improved chance of survival.⁸ Clearly, oral cytology should be a part of dental practice because the dentist can save patients' lives — the

more so since he often has the opportunity of observing oral lesions before the physician does.

Gingival pathosis is often a forerunner of deeper periodontic involvement. Likewise, occlusal disharmonies can produce a traumatogenic occlusion and subsequent tooth mobility, gingival recession and osseous changes. Early detection and correction of occlusal disharmonies, a major contribution to the dental health of adults and adolescents, should therefore be part and parcel of preventive dental practice. Adjustment of the occlusion should be accomplished by the simplest means possible. General or specific adjustments will often suffice.

As guardian of the patient's oral health the dental practitioner must be constantly alert to accidental injury of the oral structures. Contact sports bring the possibility of such accidents. Dental injuries among 10,000 Los Angeles high school football players were entirely eliminated in 1964 by the use of mouth protectors. Two hundred and fifty local dentists co-operated in this achievement. Every private practitioner has an obligation to advise and construct necessary protective appliances for his patients. They will appreciate his concern for their well-being.

CONCLUSIONS

I believe that preventive dentistry will occupy a progressively larger share of

clinical practice as education increases demand for this service. Water fluoridation in combination with the triple fluoride approach can be projected to reduce dental caries by 89-90 per cent. The urban child who ingests fluoridated water will reap the greatest benefit. Controlled oral hygiene, followed by subgingival scaling, can reduce the incidence of gingivitis by 50-90 per cent depending on individual oral hygiene habits previous to treatment.⁵ Preventive and interceptive orthodontics, including serial extractions, can reduce the need for advanced orthodontic therapy by 24-32 per cent. Oral cytodetection can disclose otherwise unsuspected oral cancer and thereby increase the chances for survival. Protective athletic appliances can prevent most tooth fractures in contact sport. "Preventive Dentistry," in short, "is realizing that there is no future in repair alone."

1. Cerf, Bennet. Bennet Cerf's laugh day. New York, Doubleday, 1965.
2. Fluoridation for better dental health moves ahead in Contra Costa County. J. California D. A. 41:219, 1965.
3. Bass, C. C. An effective method of personal oral hygiene. J. Louisiana State M.A. 106:100, 1954.
4. Arnim, S. S., Diercks, C. C. and Pearson, E. A., Jr. What you need to know and do to prevent dental caries and periodontal disease. J. North Carolina Dental Society 46:4, August 1963.
5. Muhler, J. C. Preventing dental caries. In: Workshop—Actualizing the potential of preventive dentistry. Columbia, The Curators, University of Missouri, 1966. Processed.
6. Canadian Dental Association. Transactions 1964. Dental Services Committee. p. 13.
7. Anderson, D. L. Significance of surface size of intra-oral carcinoma. J. Canad. D.A. 32:212, 1966.
8. Idem. Personal communication, May 1966.

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Amendement au projet de loi C-227

Un amendement accepté le 6 décembre permettra à la loi medicare fédérale de s'étendre à certains services de santé fournis par des professionnels qui ne sont pas médecins. A la suite de cet amendement le cabinet pourra autoriser des contributions visant à défrayer le coût de tous les services qui font l'objet de programmes d'assurance santé provinciaux.

En pratique une province qui désirerait défrayer le coût des traitements fournis par les dentistes devra faire une demande au gouvernement fédéral. Si celle-ci est acceptée la province bénéficiera de la contribution fédérale; sinon elle devra à elle seule assumer les frais de ces traitements.

Recurring granuloma pyogenicum: case report

K. W. Davey,* DDS, MScD and W. R. Barlow, DDS, Toronto, Ontario

The authors report the treatment of a recurring granuloma pyogenicum in a young boy at age two and age six. This tumour-like lesion represents an inflammatory response of blood and lymph vessels to minor trauma which opens a portal of invasion for micro-organisms. These cause the tissue to respond with proliferation of a vascular type of connective tissue. The patient died from unrelated causes shortly before the publication of this report.

■

Les auteurs rapportent le cas d'un granulome pyogénique récidivant qui a dû être traité chez un jeune garçon à l'âge de deux ans et de six ans. Cette lésion est le résultat de la réaction inflammatoire des vaisseaux sanguins et lymphatiques à un traumatisme mineur et à l'infection secondaire qui y est associée. Il s'ensuit une réaction tissulaire caractérisée par la prolifération d'un tissu conjonctif fortement vascularisé. Le patient est mort quelque temps avant la publication de ce rapport mais la lésion décrite n'était pas en cause.

Granuloma pyogenicum is generally considered to be a benign tumour-like lesion or inflammatory response of the blood and lymph vessels which commonly occurs intra-orally. This condition usually arises as a result of minor trauma which provides a portal of invasion for non-specific micro-organisms. These cause the tissue to respond with an over-zealous proliferation of a vascular type of connective tissue.^{1,2} The exciting factor may originate from calculus, caries, occlusion, or erupting teeth. Endocrine changes of pregnancy can generate an over-exuberant response to a pre-existing trauma, which would ordinarily not be considered as damaging.

Ronchese³ reports that of 58 cases of granuloma pyogenicum seen on exposed parts of the body, 37 of the tumours occurred in females and 21 in males. Twenty-six of the lesions in female patients were found in pregnant women. Gardner¹ reports that these tumours can occur in adolescents but are seldom seen in young children.

CASE REPORT

Previous History. — Four years ago a 2 year white male of French-Canadian

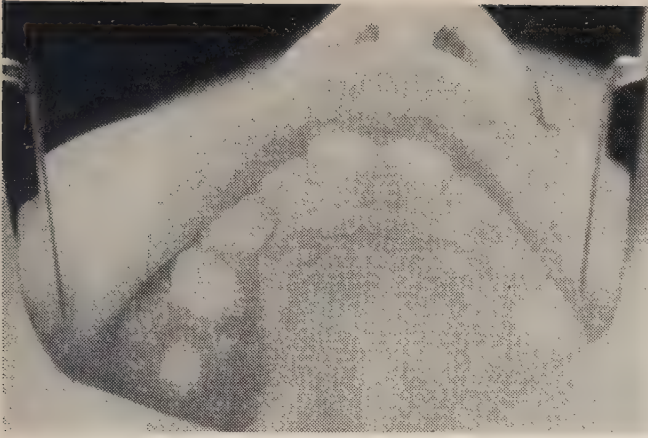


FIGURE 1

origin was admitted to hospital with an ulcerating lesion in the area of the erupting upper left deciduous second molar. Excluding a sensitivity to bee stings (the chief complaint) and a slight bronchial asthma, the medical history was that of a healthy child with normal mental and physical development. The lesion exhibited a painless mass of haemorrhagic granulation tissue (Figure 1). Dental radiographs indicated a normally erupting second deciduous molar. A swab test, taken of the lesion at this time, yielded a heavy growth of *Staph. pyogenicus* and a subsequent biopsy provided a diagnosis of granuloma pyogenicum. An acrylic bite rim was inserted in the lower anterior arch (Figure 2) to prevent trauma by occlusion. The patient was discharged five days later with instructions to use a saline wash and potassium penicillin G, 400 I.U., one tablet qid. Since the patient lived in a community which was a considerable distance from the hospital, he was referred to the family dentist and physician for removal of the acrylic bite rim and further supervision.

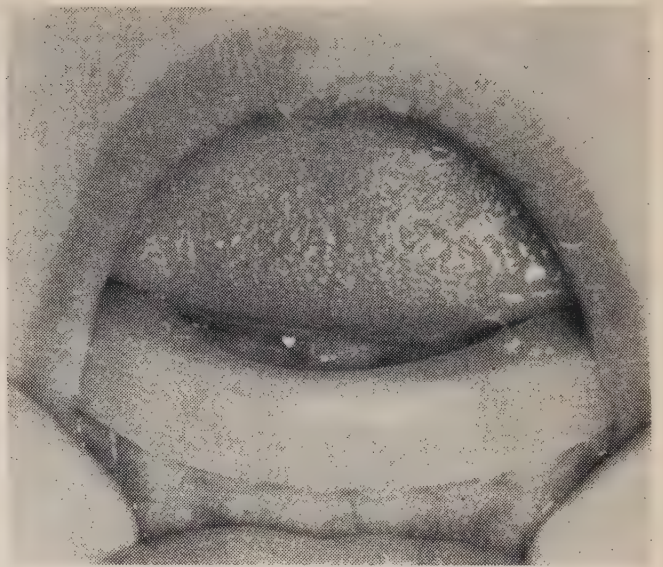


FIGURE 2



FIGURE 3

Present Chief Complaint. — At six years of age the patient was re-admitted because of an inflammatory growth in the mouth. A painless, red, haemorrhagic, ulcerated swelling was noted in the area of the upper left first and second deciduous molar and the erupting first permanent molar. The tissue of the gum was inflamed from the upper left incisor to the tuberosity (Figures 3 and 4).

Radiographically, both the complete skull films and intra-oral dental films ap-

peared normal except for a slight radiolucency at the bifurcation of the left maxillary first deciduous molar (Figure 5).

Bacteriological swabs taken the first and second day after admission were negative but on the sixth day after admission a positive culture of a heavily mixed growth of *Str. viridans* and *N. calarrhatis* was obtained.

Since the lesion four years previously had yielded staphylococcus, it was decided to institute treatment with penicillin V potassium, 125 mg. q6h. The patient's mouth was also rinsed three times a day with normal saline. This therapy proved unsuccessful.

Three weeks later the upper left quadrant was completely scaled and, due to the noted radiolucency on the radiograph, the maxillary first deciduous molar was removed. After a consultation

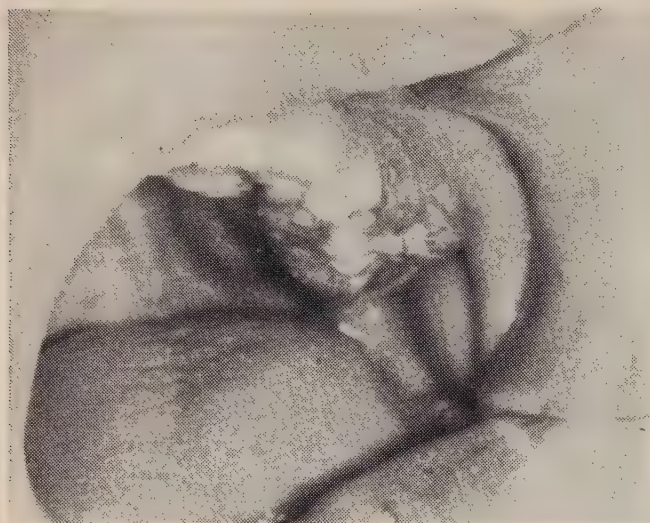


FIGURE 4



FIGURE 5

between the dental department and the plastic surgeons it was agreed that the lesion required radical surgical excision. The operation was performed the next day. On the following day the patient was discharged with instruction to use a dental mouth wash. There was no evidence of recurrence up to the time of the patient's accidental death prior to the submission of this report.

DISCUSSION

In the case presented it is difficult to establish the cause of the inflammatory response. The scaling revealed that only minimal calculus was present and the left quadrant proved to be caries free. The result of removal of the maxillary first deciduous molar was inconclusive. Since both lesions developed primarily about an erupting tooth (that is, the second deciduous molar in 1961 and the first permanent molar in 1965), it can be concluded that the erupting tooth caused the exuberant proliferation in this particular case. It would have been interesting to note the condition of this area at 12 years of age when the second permanent molar erupts.

The lesion is non-encapsulated and can recur if not completely removed surgically. The operation performed in the first episode was for biopsy purposes only and the possibility exists that only a partial biopsy was executed.

SUMMARY

A case report of the treatment of a recurring granuloma pyogenicum is described. The first occurrence was treated by an acrylic splint and antibiotic therapy. The second occurrence was treated by complete surgical removal.

*Chief of Dentistry, Hospital for Sick Children, Toronto.

1. Gardner, A. F. Tumor and tumor-like lesions of the oral cavity in infants and children. *J. Den. Children* 31:42, 1st quart. 1964.
2. Shafer, W. G., Hine, M. K. and Levy, B. M. A textbook of oral pathology. Ed. 2. Philadelphia and London, Saunders, 1963.
3. Ronchese, F. Granuloma pyogenicum. *Am. J. Surg.* 109:430, 1965.

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Bill C-227 Modified

The federal government's medicare legislation was amended in the Commons December 6 to permit inclusion in the future of a wide range of health services provided by non-medical practitioners. Under the amendment the cabinet is empowered to authorize federal medicare contributions to any medically-required services that are covered under provincial insurance schemes. This means that if a province wants to insure dentists' services, it must apply to the federal government. If the cabinet agrees, it will be able to authorize federal contributions. If the cabinet does not agree, the province will have to pay entirely for the additional coverage.

The specialties in general dental practice

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Dentistry, like medicine, is a profession of many parts. It could have been an accepted specialty of medicine if a few Marylanders in the early 1800's had been a bit more clear sighted. It was then that Horace Hayden, MD, tried to interest medical authorities and students at the University of Maryland in dental lectures. Failing to do so, he later established with Harris, Baxley and Bond the first dental school which last year celebrated its 125th anniversary. Had the medical profession not been opposed to the organization of a dental college as a department of the medical school, dentistry would probably now be an oral specialty of medicine, like laryngology, otology and ophthalmology.

All specialties have evolved through public demand from the base of general practice. As the demand for a particular service outgrew the supply, some practitioners voluntarily relinquished other facets of practice and limited their field of endeavour. Thus, a specialist was born. Further self-training or formal education gradually differentiated the specialist from his colleagues. Until recently no other standard had to be met. This easy approach was subject to abuse and controls became necessary to ensure a minimum level of competence. Today, in many countries, anyone who aspires to specialty status must qualify under specific educational requirements and submit

to an examination. Some countries also compel the practitioner to limit his practice to the specialty concerned. Requirements are less stringent or absent in countries where there is a shortage of dentists.

In Canada and the United States public acceptance and professional approval have led to the designation of certain specialty areas in dentistry. Eight dental specialties are recognized in the United States: orthodontics, oral surgery, periodontics, prosthodontics, paedodontics, oral pathology, public health and endodontics. The Canadian Dental Association recognizes five dental specialties: orthodontics, oral surgery, periodontics, prosthodontics and paedodontics. Each specialty is characterized by well established rules for specialized practice. Every licensed American dentist may, of course, legally provide all dental services regardless of whether or not they happen to fall into a specialty area of dentistry. But in 14 states he must possess an additional specialty licence if he wishes to practise as a specialist. Since January 1, 1965 no one may announce himself as a specialist in the United States unless he possesses a specialty licence or has completed graduate study based on requirements established by the various American specialty boards in collaboration with the Council on Dental Education of the American Dental Asso-

ciation. While there have been some rumblings about this, over three-fourths of those polled in a recent survey of the profession concurred with these stipulations.

There is little question on this point. Granted, a recent graduate may not be knowledgeable in all that may be requested of him in the constantly expanding field of dental service. But a competent practitioner is required to have more than a speaking acquaintance with the specialty areas of practice. Moreover, even though he does not claim to be a specialist nor have any desire to be one, the general practitioner may be perfectly able to provide a service that is reasonably comparable to that of the specialist. It is a fact, though, that many busy general practitioners are unable to exploit their desires or abilities in areas that hold a dominant interest for them. The all too frequent result is a sense of frustration.

Perhaps this paper might have been more aptly titled 'Idealism v. Realism.' It would be ideal if all dentists were capable of providing every aspect of dental service for which they have legal approval. But in reality few dentists possess such capabilities, training, desire or spirit of self application. There is here, as in all phases of life, a conflict between reality and practicality. Therefore I chose "The Specialties in General Practice" as my title. This is also the title of a medical textbook which outlines diagnostic and treatment procedures for the general practitioner who is confronted with a 'specialty problem' which he cannot avoid and about which he has limited knowledge. A similar text would be highly desirable in dentistry where the general practitioner is required to perform more and more specialty services despite an increase in the number of specialties and in the volume of specialists' services. Clearly, the general practitioner must either possess or acquire the requisite competence if he is to accept responsibility for such treatment. This calls for continuing education beyond the undergraduate level, a level that has serious deficiencies even from the standpoint of minimal service qualifications. For years the undergraduate

curriculum has concentrated on certain clinical aspects of practice such as operative dentistry and prosthodontics. The success of fluoridation now carries the implication for drastic reorientation in the character of dental practice that has heretofore been mainly concerned with the repair or replacement of teeth. In consequence, other aspects of dental practice will assume greater importance. Health of the soft tissues will command prime attention and orthodontics is bound to emerge as a major area of attention in general practice if current population growth predictions materialize (75 million children by the end of the decade in the USA).^{1,2} A new and radically altered concept of dental service will require a different emphasis in undergraduate education. The full effect of these trends will be felt by the next generation of dentists, but it is we who must recognize the problems and prepare the way.

There is good evidence of the practising dentist's growing interest in the specialty areas. Several official society publications, covering orthodontics, oral surgery and paedodontics, already have more non-specialist subscribers than specialists or society members.

Never has the subject of specialization received so much attention as in recent years. Several observers^{3,4} have made it clear that they view specialization as a supplement and not a replacement for the general practice of dentistry. Kauffmann⁵ went even further when he claimed that paedodontics is one area that should never be designated a specialty. Because of recurring doubts, the American Dental Association in 1964 imposed a three year moratorium on the creation of new special areas. And on an international level, Ward⁶ of England stated before the Fédération Dentaire Internationale that specialty status could only be justified in two areas: orthodontics and oral surgery.

US orthodontists and oral surgeons currently comprise 80 per cent of all dental specialists. According to Volker,⁴ only 6 per cent of American dentists are announced specialists, while a further 6 per cent practise as part-time specialists. By 1975 Volker expects that one-third of the

profession will be specialists, two-thirds will be general practitioners, and one-third of the general practitioners will concentrate on selected fields of practice. This would be amazing because our present educational institutions are in no position to make this prediction come true. North American universities now provide 340 openings for graduate orthodontic study.^{7,8} (This, by the way, is equivalent to 10 per cent of annual dental graduations.) Over twice that many seek admission. Only 32 two year courses are available for these applicants. Other specialties fare even worse. There are only 28 courses in oral surgery, 21 in paedodontics, 20 in periodontics, and 22 in prosthodontics.⁹ Expansion in the number of schools providing graduate study and in the class size is needed if Volker's predictions are to become fact. Other recent developments will accentuate these inadequacies. The ADA, for example, requires that anyone desirous of announcing himself as a specialist after January 1, 1965 must have two years of formal specialty education or possess a licence in a state which has that legal standard. Moreover, elimination of the American preceptor program in orthodontics which produces about 30 orthodontists a year is slated for January 1, 1967 and the undergraduate major program in orthodontics in California is being phased out.¹⁰

These changes will certainly open the door for the inclusion of more specialty area service in general practice. Best¹¹ agrees with this trend and argues that more thoroughly educated and better trained general practitioners will minimize the need for increased specialization. Others believe that group practice may achieve a similar effect. Thus, Lyons¹² contends that "more and more service will be offered to more and more people" in contrast to "past emphasis of the total specialist rendering service of extraordinary scope to fewer people." But the environment that makes this possible will be contingent on a careful blending of talent, continuing education and the innate satisfaction of doing — factors which influence and guide each person in his professional work. Motivation of the individual dentist will be largely af-

fectured by these very tangible stimuli. I would encourage anyone to enter any field of service for which he has reasonable qualifications. Indeed, I would consider him remiss if he fails to do so. But I would discourage him from taking this step if he lacks adequate knowledge — the base on which experience is built. Other requisites, in addition to knowledge, are the possession of ability, a keen desire and a good conscience. We certainly cannot tolerate any substandard performance. It is therefore desirable that every dentist examine his own practice to discover if new directions or greater dimensions might not give more interest and confer greater mental and material benefits. The orthodontist had to do this with the advent of cephalometrics and when the Tweed and Begg techniques were demonstrated. He had to determine whether and how these procedures should or could be used to advantage by him.

The division of dental service into specialties has been termed fragmentation. This is a poor word. The profession is not being broken up into useless parts because public and professional acceptance has allocated an important place for each special service in dentistry. The ADA's moratorium on new special areas may, however, restrain the profession from excessive or too rapid division. But when people seek a certain service, the demand will persist until they find someone who recognizes that demand and is prepared to satisfy it. This is exactly how each specialty began.

At graduation few of us know immediately where our true abilities lie. As Baralt¹³ says, "When a dental student is graduated, his education must be considered a minimum. Because he is a professional person he is obligated to continue his education throughout his professional life." This is sound advice. Continuing education is the catalyst that can guide the young practitioner into fields of service for which he may have an inherent talent that would otherwise go unrecognized. Moreover, the opportunities for improving one's knowledge are abundant. One does not have to leave home for very long or go very far to take advantage of them. Most short

courses extend for less than three days. Most of them are brief and tightly organized so as to instruct the dentist in the least amount of time. The November 1964 issue of *The Journal of The American Dental Association* listed 463 university-sponsored courses covering all aspects of dental practice. In addition, there were 37 courses sponsored by other organizations. Though many of these courses relate to special areas of practice, the titles specify that they are intended for the general practitioner. In spite of these opportunities, a recent ADA report says, "There may be a belief that there is lack of opportunity for the general practitioner to avail himself of programs of continuing education oriented to his needs rather than the specialist."¹⁴ This is obviously at variance with the fact that 36 dental schools in the United States and two in Canada offered no less than 400 short courses for the general practitioner in 1965.⁹

There is, unfortunately, a sour taste in this continuing education menu. The person for whom much of it is arranged, the general practitioner, is, to be blunt, not making the best use of the opportunities. Columbia University in 1960 offered a one week course in preventive and corrective orthodontics. This course included information that a general practitioner would find useful in everyday practice. Though widely publicized, insufficient applications were received to warrant holding the course. In 1961 Columbia tried again. This time there were 10 applicants, half of them from the Mid-West. The populous East where the school is located showed little interest. Though the 10 participants of 1961 were well pleased with the course, it was discontinued during three succeeding years for lack of participants. To encourage more applications, the course was then shortened and the tuition fee reduced, but again to no avail. Experience at the University of Maryland is similar. Out of 10 short courses scheduled in 1964, three were cancelled because of lack of interest and two-thirds of those in attendance at the remaining seven courses were teaching staff members of the dental school. The reasons for this indifference are hard to conceive.

Dentists should at least undertake minimal postgraduate studies. Undergraduate studies provide basic information but continuing courses sharpen and broaden one's knowledge and abilities. These courses are not intended to make a specialist, for that is graduate education's responsibility. Each course emphasizes a selected field. The dentist thereby learns to discriminate between that which is within his limits and what is beyond. Weaker areas of service are improved. Mental reservations evaporate as he accumulates new knowledge. Previously self-imposed restrictions become less valid as he gains greater confidence and derives more satisfaction from his practice.

Perhaps we could emulate an example set by the medical profession. The American Academy of General (Medical) Practice requires its members to complete 150 hours of postgraduate study every three years. Instruction may be obtained through medical societies, universities or hospitals. Such instruction usually consists of lectures and panel discussions, though the clinical course method was followed last year in eight San Francisco hospitals. The courses are frequently oversubscribed by 50 per cent. This form of continuing education improves the quality of medical care in that large middle area between the specialist and the general practitioner. I am pleased that our profession has just taken a similar step by organizing the American Academy of General (Dental) Practice. Membership in this Academy is to be earned and sustained by attendance at postgraduate courses offered by dental schools at Alabama, Boston, Georgetown, Illinois, New York, Oregon, Pittsburgh, St. Louis and Temple Universities.

Some dentists protest that attendance at certain courses is too restricted. But as the ADA Council on Dental Education¹⁴ points out, "unrestricted access to advanced education would be totally unrealistic for it is the obligation of educational institutions to select students on the basis of ability of the individual to understand the course content." The Council cites the example of a course in advanced cephalometrics which is designed to meet the needs of the dentist

who has completed several years of postgraduate study in orthodontics. Such a course would exceed the comprehension of the dentist whose understanding of orthodontics is confined to knowledge gained from undergraduate instruction. Restricted attendance at certain courses is therefore quite reasonable. Surely no one would want to spend time and money on what from the start could turn out to be a useless pursuit.

Many courses are well within the range of the beginner's needs. From these he can progress to a more advanced level of study as his abilities improve. For instance, St. Louis University has proposed developing a certificate program in orthodontics for the general practitioner which can be completed in three and a half years. Courses may be scheduled for two weeks during spring and autumn. This program has two objectives. One of these is to elevate the standards of orthodontic service in remote areas. The second purpose is to endow the practitioner "who is unable to attend a formal postgraduate program" with basic orthodontic knowledge needed to pursue a useful service in general practice. This is an inviting prospect. There are no restrictions as to applicants, but the courses are also no sinecure. They demand an interested candidate with a reasonable degree of competence.

My concluding remarks relate to the opportunities and obligations of the dentist as a professional man. A major criticism is his failure to make adequate use of consultation. Dentistry differs from medicine in this respect. The physician who diagnoses is usually 'consulted' in the truest sense of the word so that advice, rather than therapy, is given. The patient may go to an entirely different therapist or he may return to the referring physician for therapy. In our profession, the specialist tends to be a therapist as well as a diagnostician. The patient is referred for dental treatment, not for a decision as to what is wrong or what should be done. There is often very little communication between the referring dentist and the dental consultant. Neither the specialist nor the general practitioner recognize the relationship that should exist between them.

My attention was recently directed to an advertisement describing a new use for the telephone. It illustrated a portable telephone which a physician can use to transmit an on-the-spot electrocardiogram from the patient's home. The EKG signals are converted to tones sent over the telephone lines to be studied by the specialist. The diagnosis is telephoned back to the attending physician. Treatment can then be instituted without delay. This is a graphic example of the benefits of consultation. The principle also applies to dentistry where better service will result through a pooling of resources and knowledge. Perhaps, as Teuscher¹⁵ puts it, "the day may not be far off when the dentist will transmit data about a patient to a computer centre and receive back in a matter of seconds a diagnosis of his patient's ailment and a suggestion for treating it."

But success in the attainment of our goals and aspirations depends on personal initiative. This means that a dentist must be constantly aware of the extent of his abilities if he is to put them to the best possible use. He cannot afford to blunder and, if he recognizes his limitations, it is unlikely that he will do so. Motivation and perseverance have been identified as cardinal factors in the decision on whether or not a child continues its schooling. They may, in fact, be more important than intelligence itself. This applies equally to the years that follow graduation. Perhaps this sentiment was shared by the great silent one, Calvin Coolidge,¹⁶ when he said, "Nothing in the world can take the place of persistence. Talent will not—nothing is more common than unsuccessful men with talent. Genius will not — unrewarded genius is almost a proverb. Education itself will not—the world is full of educated derelicts. Persistence and determination alone are omnipotent." These are good words with which to close.

Based on the George Wellington Grieve Memorial Lecture delivered at the national convention of the Canadian Dental Association, Halifax, June 13, 1966.

1. Denhoff, Eric. Bridges to burn and to build; a presidential address. *Journal of Developmental Medicine and Child Neurology* 7:3, February 1965.
2. Graber, T. M. Are orthodontic educational opportunities adequate? *Am. J. Orthodont.* 49:105, 1963.

3. Hillenbrand, Harold. Specialism in a modern world. *Am. J. Orthodont.* 50:566, 1964.
4. Volker, Joseph. The impact of specialization on the future of dentistry. To be published in the forthcoming Proceedings of the 125th anniversary of the founding of dentistry and the first dental school, The Baltimore College of Dental Surgery (1840). G. H. Foley, ed.
5. Kauffmann, J. H. Dentistry's false philosophy: the specialization fallacy. A critique. *Bul. New York Soc. Den. Children* 15:1, 1964.
6. Ward, T. G. Specialization in dentistry. *Internat. D. J.* 14:50, 1964.
7. Dewel, B. F. Chairman, Council on Orthodontic Education, American Association of Orthodontists. Personal communication.
8. Anderson, G. M. Years of change. *Am. J. Orthodont.* 50:521, 1964.
9. Wessels, K. E. Secretary, Council on Dental Education, American Dental Association. Personal communication, 1965.
10. Wylie, W. L. Reappraisal of the orthodontist as specialist. *J. Canad. D. A.* 27:703, 1961.
11. Best, E. J. Are we specializing in specialists? *Oral Hygiene.* Part 1 June, Part 2 July, 1965. Editorial comment.
12. Lyons, Harry. Topics and trends. *Dental Survey* 41:17, 1965.
13. Baralt, A. R., Jr. Continuing education. *J.A.D.A.* 70:40, 1965.
14. American Dental Association. Reports of officers and councils, 1964. Minutes of Board of Trustees, April 3, p. 192.
15. Teuscher, G. W. Computodontics. *Northwestern University Bulletin, The Dental School*, Fall issue p. 3, 1965. Editorial.
16. Coolidge, Calvin. Quotation from address Education, its values, obligations and responsibilities. Warren H. Cole, President, Institute of Medicine of Chicago, 1964. Published in Proceedings of the Institute of Medicine 25:2, January 1964.

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in appreciation • remerciements

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Nous mentionnons ci-dessous, la liste des personnes qui ont gracieusement consenti à reviser des manuscrits et à analyser des livres pour le Journal, au cours de l'année 1966. Au nom de ses auteurs, de ses lecteurs et en son propre nom, le Journal désire leur exprimer sa reconnaissance et les remercier pour leurs généreux conseils.

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K. F. Pownall
H. G. Poyton
C. E. Purdy

Clifford Reynolds
M. A. Rogers
H. Rosen
R. B. Ross

Dixie Scoles
Benjamin Sedlezky
F. A. Smith
P. T. Smylski
G. H. Sperber
J. D. Spouge
L. G. Stevenson
A. E. Swanson
O. P. Sykora

L. V. Taylor
C. D. Torneck
J. R. Trott

W. F. Walford
C. H. M. Williams

D. J. Yeo
O. J. Yule

Federal income tax returns by dentists

For guidance to the dental profession and to bring about a greater uniformity in the data to be furnished to the Taxation Division of the Department of National Revenue in the annual Income Tax Returns to be filed, the following matters are set out.

INCOME

There should be maintained by every member of the dental profession an accurate record of income received from his profession (fees) and from other sources (investments, real estate rentals, etc.). The record should be clear and capable of being rapidly checked against the return filed. Records should be maintained in books kept for the purpose which should be retained until written permission for their disposal is obtained from the Minister of National Revenue.

EXPENSES

Under the heading of expenses the following accounts should be maintained and records kept available for checking purposes in support of charges made:

- (a) Dental and like supplies.
- (b) Office help, nurse, bookkeeper, laundry and malpractice insurance premiums:

Amounts of salaries and wages paid should be reported on Form T4, obtain-

able from your District Income Tax Office. (The Income Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount, if paid, is to be added back to income of the payer.)

(c) Telephone expenses incurred in connection with professional practice.

(d) Assistant's fees:

The names and addresses of the assistants to whom fees are paid, and amounts paid, should be furnished on or before the last day of February in each year on Form T4. (Do not confuse with individual return of income, Form T1, to be filed on or before April 30 in each year.)

(e) Rentals paid:

The name and address of the owner (preferably) or agent of the rented premises should be furnished. [See (g).]

(f) Postage and stationery.

(g) Proportional expenses of dentists practising from their residences:

1. Owned by the dentist: Where a dentist practises from a house he owns and as well resides in, a proportionate allowance of house expenses will be given for the laboratory, office and waiting room space, on the basis that this space bears to the total space of the residence. The charges cover taxes, light, heat, insurance, repairs, and interest on mortgage. (Name and address of mortgagee to be stated.) Note: For depreciation see item 2 (m).

2. Rented by the dentist: The rent will be apportioned if paid by the dentist; the owner of the premises

takes care of all other expenses mentioned in (1) above.

(h) Sundry expenses (not otherwise classified):

The expenses charged to this account should be capable of analysis and supported by records.

Claims for charitable donations will be allowed up to 10 per cent of net income from all sources upon submission of receipts to your District Income Tax Office. Charitable donations made through professional practice should be excluded from professional expenses and claimed as a deduction from income generally, along with any donations made otherwise.

The annual dues paid to governing bodies under which authority to practise is issued and membership association fees, to be recorded on the return, will be admitted as a charge.

For 1965 and subsequent years, tuition fees paid to an educational institution in Canada for a postgraduate course are an allowable deduction, but no deduction may be made in respect of travelling or living expenses incurred in connection with the taking of such a course.

(i) Interest paid on borrowed money may be charged against professional income if the borrowing was for professional purposes. If the money was borrowed to acquire investments, the interest is chargeable against the investment income. If the loan was for personal purposes no deduction from income will be allowed for the interest paid thereon.

(j) Business tax will be allowed as an expense but income taxes will not be allowed.

(k) Automobile expenses:

Taxi fares and automobile expenses incurred in earning the income from the dental practice will be allowed when the dentist must visit the patients at their homes. The cost of transportation between the dentist's home and his office, however, is not an allowable deduction from income. (The manner of calculating claims for automobile expenses is described in Information Bulletin No. 28 issued by the Taxation Division of the Department of National Revenue and reprinted in part on pages 209-210 of the March 1965 issue of the Journal.)

(l) Social club dues are allowable as deductions from income only when, and to the extent that, they are paid for business purposes, and any dentist claiming them may be required to prove, to the satisfaction of the taxation authorities that the amount claimed was expended wholly and directly for the purpose of increasing his business income. 'Social club dues' means annual or monthly membership dues or fees; it does not include an initiation or entrance fee or the cost of a share of a club's capital stock, nor does it include charges for food and drink, living accommodation, fees for the introduction of guests and the like.

(m) Capital Cost Allowance (Depreciation):

The method of computing capital cost allowance for tax purposes is the same as that used last year. However, due to changes in the Income Tax Regulations, dentists (and other taxpayers) will be allowed to claim capital cost allowances on one-half, only, of the cost of assets in classes 3 (brick building — office or residence used both as dwelling and office), 6 (frame building — office or residence used both as dwelling and office), and 8 (dental equipment including instruments each costing \$100 or more; office furniture and fixtures) which were acquired after March 29, 1966.

For further information on the subject you may refer to the Regulations or you may consult your District Income Tax Office.

CONVENTION EXPENSES

Convention expenses are allowable to an individual practising a profession, but the allowance is restricted to the expense of attending no more than two conventions in a taxation year. The taxpayer's attendance at the convention must have been for professional reasons. There are no geographical restrictions and the convention, therefore, need not necessarily have been held in Canada. The expenses to be allowed must be reasonable and the taxpayer should show:

1. The dates on or between which the convention was held, and the location thereof;

2. The number of days he was present at the convention, supported by a certificate of attendance from the sponsoring organization; and

3. The expenses incurred, segregating (a) transportation expenses, (b) meals, and (c) hotel expenses, for which at least vouchers should be obtained and kept available for inspection.

All expenses of a personal nature including those attributable to the fact that the taxpayer's wife (or husband) accompanied him to the convention must be excluded from the foregoing.

No expenses for attending a convention are allowable as a deduction from salary income, since such a deduction is prohibited by Section 5 of the Act.

REGISTERED RETIREMENT SAVINGS PLANS

The amount that is deductible in respect of contributions to a retirement savings plan is limited:

(a) In the case of an employee receiving a salary who is covered by a registered pension fund or plan (whether or not he contributes to the pension fund) to \$1,500 or 20 per cent of his earned income, minus the amount, if any, he is allowed to deduct from income for his contribution to the pension fund.

(b) In other cases, to the lesser of \$2,500 or 20 per cent of his earned income. 'Earned income' usually consists of income received as salary (before any pension deductions) or income from carrying on a business or profession, plus net rental income.

The amounts deductible are those paid in 1966 and within 60 days after the end of the year. A payment made in January or February 1966 cannot be claimed in 1966 if it could have been deducted in 1965.

Individuals enquiring whether a proposed or existing plan is acceptable should usually obtain that information from the corporation offering the plan as it will normally be the corporation's responsibility to explain the plan and get it registered.

Dentists who have applied for membership in the Canadian Dental Association

Retirement Savings Plan prior to February 15, 1967 may be assured that their names are registered as participants in a registered retirement savings plan and that their contributions are deductible for the taxation year 1966. The closing date for applications and contributions applicable to 1966 is February 15, 1967.

A personal statement of account and a receipt showing the amount of contributions will be mailed in March 1967 to each participant to support claims made for deductions in 1966 income tax returns.

Applications for membership in CDARSP received after February 15, 1967 will entitle participants to tax deferment for 1967.

PAYMENT OF TAX

Individuals whose income is more than 25 per cent derived from sources other than salary or wages are required to pay the tax for each year by quarterly instalments during such year on the following dates, March 31, June 30, September 30 and December 31.

DENTISTS UNDER SALARY CONTRACT

The Income Tax Act provides for the deduction of certain expenses from salary income.

The allowable expenses include travelling expenses, annual professional membership dues, office rent, salary to an assistant or substitute and supplies consumed directly in the performance of the duties of employment.

Certain conditions are attached to the allowance of the expenses. Without trying to recite the exact provisions of the law the main points are:

(a) That the expenses must have been incurred in the performance of the duties of the office for employment.

(b) That the employee is required under the contract of employment to pay the expenses.

(c) To claim travelling expenses the employee must be ordinarily required

to carry on the duties of his employment away from his employer's place of business. Travelling between the dentist's home and his office is not included.

they were not charged to the partnership and that they were necessarily laid out to earn partnership income.

INCOME FROM A PARTNERSHIP

Additional expenses incurred by a partner, but not charged to the partnership, may be claimed as a deduction from the partner's share of income. However, the partner must be in a position to substantiate these expenses, to show why

PROVINCIAL TAXES ON INDIVIDUALS

Each of the 10 provinces imposes its own tax on the income earned by an individual in that province. With the exception of the province of Quebec, no separate provincial income tax return need be filed by an individual whose income is subject to provincial tax.

Déclaration fédérale d'impôt sur le revenu

Nous présentons un guide à l'usage des dentistes destiné à amener une uniformité plus grande dans les données fournies à la division de l'impôt du ministère du Revenu national dans les déclarations d'impôt sur le revenu.

LE REVENU

Chaque dentiste doit tenir un compte exact des revenus qu'il retire de sa profession (honoraires) et d'autres sources (placements, loyers de biens immobiliers, etc.). Les comptes doivent être clairs et susceptibles d'être comparés rapidement à la déclaration remise. Les comptes doivent être tenus dans des livres à cet effet, lesquels doivent être conservés tant que le dentiste ne reçoit pas la permission écrite de s'en défaire du ministre du Revenu national.

LES FRAIS

Les postes suivants devraient figurer sous la rubrique des frais, et on doit conserver aux fins de vérification les docu-

ments à l'appui des dépenses qui y sont portées:

(a) Fournitures dentaires et assimilées.

(b) Préposé à l'entretien, infirmière, comptable, blanchisserie et assurance contre la négligence professionnelle:

Le montant des appointements et salaires payés doit être déclaré sur des feuillets T4, fournis par le Bureau de district de l'impôt sur le revenu. (La Loi de l'impôt sur le revenu n'autorise pas la déduction d'un salaire payé par le mari à la femme ou vice versa. Si une telle somme est versée, elle doit être rajoutée au revenu du payeur.)

(c) Frais de téléphone liés à l'exercice de la profession.

(d) Salaire d'assistante:

Les noms et adresses des assistantes auxquelles un salaire est payé, ainsi que le montant payé, doivent être déclarés chaque année, au plus tard le dernier jour de février, sur le feuillet T4. (Ne pas confondre avec la déclaration d'impôt individuelle, la formule T1, qui doit être envoyée au plus tard le 30 avril de chaque année.)

(e) Frais de loyer:

On doit fournir le nom et l'adresse du

propriétaire des locaux loués (de préférence) ou de l'agent [voir (g)].

(f) Frais de poste et papeterie.

(g) Dépenses proportionnelles du dentiste exerçant à son domicile:

1. La résidence appartient au dentiste: Quand le dentiste exerce dans une maison qu'il possède et qu'il habite, il a droit, pour la surface occupée par le laboratoire, le cabinet et la salle d'attente, à une déduction proportionnelle des dépenses de la maison calculée d'après le rapport de cette surface à la superficie totale de la maison. Les frais comprennent les taxes, l'électricité, le chauffage, l'assurance, les réparations et l'intérêt hypothécaire. (Les nom et adresse du créancier hypothécaire doivent être mentionnés.) N.B.—Voir article 2 (m) pour la dépréciation.

2. La résidence est louée par le dentiste: Le loyer est alors divisé proportionnellement s'il est payé par le dentiste. Le propriétaire de la maison assume toutes les dépenses mentionnées ci-dessus (paragraphe 1).

(h) Frais divers (ne figurant pas ailleurs):

Les frais portés à ce poste doivent se prêter à l'analyse et être étayés par des documents.

La déduction de dons de charité est autorisée jusqu'à 10 pour cent du revenu net total, à condition de fournir les reçus au Bureau de district de l'impôt. Les dons de charité effectués dans l'exercice de la profession ne doivent pas être classés avec les frais professionnels, ils constituent, comme toutes les autres formes de dons, une déduction du revenu général.

Les droits annuels payés aux organismes de réglementation qui accordent l'autorisation de pratiquer, ainsi que les cotisations d'association doivent être inscrits sur la déclaration comme frais professionnels.

Les frais de scolarité payés en 1965 et les années suivantes à une maison d'enseignement au Canada, pour un cours post-universitaire, sont déductibles, mais on ne peut pas déduire les dépenses de voyage et d'entretien occasionnés par un tel cours.

(i) L'intérêt versé sur une somme empruntée peut être soustrait du revenu professionnel si l'emprunt a été fait pour

des besoins professionnels. Si la somme a été empruntée pour effectuer un placement, l'intérêt est déductible du revenu de placements. L'intérêt payé sur un emprunt effectué à des fins personnelles ne donne lieu à aucune déduction sur le revenu.

(j) La taxe d'affaire constitue une dépense professionnelle, mais non les impôts sur le revenu.

(k) Frais d'automobile:

Les dépenses de taxi et d'automobile encourues en gagnant le revenu professionnel sont déductibles lorsque le dentiste doit rendre visite au patient à domicile. Cependant le coût du transport entre le domicile du dentiste et son cabinet n'est pas déductible du revenu. (La façon de calculer la réclamation des dépenses d'automobiles est exposée dans le Bulletin de renseignements No. 28 de la Division de l'impôt du ministère du Revenu national. Elle a été partiellement reproduite dans le numéro de mars 1965 du Journal, pp. 209-210.)

(1) Les cotisations des clubs mondains ne constituent une déduction du revenu que lorsque, et dans la mesure où, elles sont versées pour des raisons professionnelles, et tout dentiste qui les déduit peut être requis de prouver à la satisfaction des autorités fiscales que les sommes réclamées ont été dépensées entièrement et directement dans le but d'accroître son revenu professionnel. Les 'cotisations de clubs sociaux' représentent les cotisations ou droits, annuels ou mensuels, des membres; elles ne comprennent pas les droits d'admission ou d'entrée, ni l'achat d'une part du capital social d'un club, ni les frais de nourriture, de boisson ou de logement, ni les droits versés pour y recevoir des invités et autres du genre.

(m) Allocation du coût en capital (dépréciation):

La façon de calculer l'allocation du coût en capital aux fins de l'impôt est la même que celle de l'année dernière. Cependant, des modifications apportées aux Règlements de l'impôt sur le revenu ne permettront aux dentistes (et aux autres contribuables) de réclamer l'allocation de coût en capital que sur la moitié seulement des biens figurant dans les classes 3 (maison de brique—cabinet ou résidence

servant et de domicile et de cabinet), 6 (maison de bois — cabinet ou résidence servant et de domicile et de cabinet) et 8 (matériel dentaire et instruments de \$100 ou plus, mobilier et accessoires de cabinet), qui ont été acquis après le 29 mars 1966.

Pour tous renseignements supplémentaires, consultez les Règlements ou le Bureau de district de l'impôt.

FRAIS DE CONGRÈS

Les frais des congrès sont déductibles pour celui qui exerce une profession, mais l'allocation est limitée aux frais de deux congrès par année fiscale. La participation du contribuable au congrès doit se fonder sur des motifs professionnels. Il n'y a aucune restriction géographique, le congrès peut donc avoir lieu en dehors du Canada. Les dépenses déductibles doivent être raisonnables et le contribuable doit indiquer:

1. Les dates auxquelles ou entre lesquelles le congrès s'est tenu, et le lieu.

2. Le nombre de jours de présence, justifié par un certificat de présence délivré par l'organisme responsable du congrès.

3. Les frais encourus, en distinguant les frais (a) de voyage, (b) de repas, (c) d'hôtel, à l'appui desquels on doit demander et conserver au moins les reçus.

Toutes les dépenses de nature personnelle, y compris celles qui seraient entraînées par la présence au congrès de l'épouse (ou du mari) du contribuable sont exclues de ce qui précède.

Les frais de participation à un congrès ne peuvent pas être déduits du revenu si celui-ci est un salaire; une telle déduction est alors interdite par l'article 5 de la Loi.

PLANS D'ÉPARGNE-RETRAITE ENREGISTRÉS

Le montant déductible pour ceux qui contribuent à un plan d'épargne-retraite enregistré se limite:

- (a) Dans le cas d'un employé percevant un salaire et couvert par un plan ou un fonds de pension enregistré, (qu'il cotise

au fonds de pension ou non)—à \$1,500 ou 20 pour cent du revenu gagné, moins le montant, s'il y en a un, qu'il est autorisé à déduire de son revenu pour sa contribution au fonds de pension.

- (b) Dans les autres cas, au moindre de \$2,500 ou de 20 pour cent du revenu gagné. Le 'revenu gagné' comprend d'ordinaire le salaire perçu (avant toute déduction pour pension) ou le revenu provenant d'un commerce ou de l'exercice d'une profession, plus les revenus nets de loyers.

Sont déductibles les sommes qui ont été versées en 1966 et pendant 60 jours après la fin de l'année. Un versement effectué en janvier ou février 1966 ne peut pas être déduit en 1966 s'il aurait pu l'être en 1965.

Pour savoir si un plan futur ou existant donne droit à la déduction, on doit se renseigner auprès de la société qui offre le plan, car c'est elle qui normalement est responsable d'expliquer le plan et de le faire enregistrer.

Les dentistes qui ont demandé à bénéficier du Plan d'épargne-retraite de l'Association dentaire canadienne (PERADC) avant le 15 février 1967 sont assurés qu'ils sont inscrits comme cotisants à un plan d'épargne-retraite enregistré et que leur contribution est déductible pour l'année fiscale 1966. La date limite des inscriptions et des contributions pour 1966 est fixée au 15 février 1967.

Un état de compte personnel et un reçu indiquant le montant des contributions seront adressés à chaque cotisant en mars 1967, à l'appui des déductions réclamées dans la déclaration d'impôt sur le revenu pour 1966.

Les demandes d'inscription au PERADC reçues après le 15 février 1967 donnent droit à la prorogation de l'impôt pour 1967.

PAIEMENT DE L'IMPÔT

Les particuliers qui retirent plus de 25 pour cent de leur revenu de sources autres qu'un traitement ou un salaire sont requis de payer l'impôt de chaque année par versements trimestriels au cours de l'année, aux dates suivantes: 31 mars, 30 juin, 30 septembre et 31 décembre.

DENTISTES RÉMUNÉRÉS PAR CONTRAT

La loi de l'impôt sur le revenu autorise à déduire certains frais d'un revenu constitué par un traitement.

Les frais déductibles comprennent: les frais de déplacement, les cotisations professionnelles, le loyer de bureau, le salaire d'un assistant ou de son suppléant, les fournitures nécessaires à l'exercice de la fonction de l'employé.

Certaines conditions sont attachées à la déduction des frais. Les dispositions de la loi sont, en gros:

(a) Que les frais aient été encourus dans l'exercice des fonctions de l'employé.

(b) Que le contrat d'emploi stipule que les frais sont à la charge de l'employé.

(c) Pour réclamer les frais de déplacement, que l'employé soit contraint d'exercer les fonctions de son emploi loin du lieu d'affaires de son employeur. Les déplacements entre le domicile du dentiste et son cabinet sont exclus.

REVENU D'UNE SOCIÉTÉ

Les dépenses supplémentaires encourues par un associé et qui n'ont pas été payées par la société peuvent être déduites de la part de revenu de l'associé. Cependant l'associé doit être en mesure de justifier ces dépenses, d'expliquer pourquoi elles n'ont pas été assumées par la société et de montrer qu'elles ont été entreprises nécessairement pour gagner le revenu de la société.

IMPÔT PROVINCIAL DES PARTICULIERS

Chacune des 10 provinces lève son propre impôt sur le revenu des particuliers qui y résident. Les particuliers dont le revenu est soumis à l'impôt provincial ne sont pas tenus d'envoyer une déclaration provinciale d'impôt sur le revenu séparément, excepté pour la province de Québec.

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Listed below are the names of individuals on whose behalf Living Memorial donations were received by the Canadian Fund for Dental Education during the past year.

Voici la liste des personnes décédées en mémoire desquelles leurs parents et amis ont envoyé, au cours de l'année précédente, une donation au Fonds canadien pour l'enseignement dentaire.

Mme René Bé'anger
Dr. W. A. Black
Dr. L. R. Bowlsby
Dr. G. H. Bray
Dr. A. A. Brightman
Dr. H. T. Brown
Dr. G. E. Bryant
Dr. G. A. Buchanan
Dr. J. T. Cairns
Dr. E. T. Carrothers
Dr. W. L. Chalmers
Dr. R. H. Colbourne
Dr. W. A. Cowan

Dr. A. L. Crozier
Dr. W. B. Daynard
Mrs. de Vries
Dr. M. M. Dunsworth
Dr. C. L. Eaton
Dr. W. J. Evon
Dr. D. W. Findlay
Dr F. C. Fraser
Mrs. Sidney Golden
Dr. Howard Graham
Dr. J. R. Graham
Mrs. J. D. Hawkins
Dr. H. J. Hocking

Dr. Maude S. Holway
Dr. H. A. Hoskin
Dr. Earl Jackson
Dr. H. D. Jenner
Mrs. Frank Kent
Dr. L. E. Kent
M. Ernest Legault
Dr. H. D. Leuty
Dr. J. P. Markinski
Dr. W. A. Marquis
Dr. E. Marshall
Dr. A. D. A. Mason
Dr. H. M. McCaffery
Mr. A. G. McCurdy

Dr. L. D. McLaurin
Dr. E. B. Nagle
Mr. Frank Parry
Dr. W. Pickering
Dr. W. H. Pritchard
Dr. J. Reddin
Dr. S. R. Richardson
Deceased officers of the
Royal Canadian
Dental Corps
Dr. H. B. Smith
Mr. C. E. Spence
Dr. C. L. Strachan
Mrs. M. Wasserman

WHO moves into new headquarters

The World Health Organization is now established in its new headquarters on the Avenue Appia in Geneva, Switzerland. The new building, which was formally opened on May 7 during the 19th World Health Assembly, has a secretariat

The new headquarters building of the World Health Organization in Geneva, Switzerland, dedicated May 7, in the presence of 350 international guests, has 11 storeys, three of which are below ground level. An international labour force of about one thousand men worked four years to construct the handsome building, which will house a staff of 960 persons.

L'OMS prend possession de son nouveau siège

L'Organisation mondiale de la Santé a pris possession de son nouveau siège social, sur l'avenue Appia, à Genève (Suisse). Le nouvel édifice, inauguré le 7 mai lors de la 19ème Assemblée pour la santé mondiale, comporte un secrétariat

Le nouveau siège de l'Organisation mondiale de la Santé, à Genève (Suisse), inauguré le 7 mai en présence de 350 personnalités internationales, compte 11 étages dont trois en sous-sol. Cet élégant édifice, où travailleront 960 personnes, a été construit en quatre ans par quelque 1,000 ouvriers de diverses nationalités.





and an executive board block. The former consists of 11 storeys, eight of them above ground, poised on slender pyramids of reinforced concrete. This block houses the 961 members of the WHO staff. Circulation of mail (375,000 pieces received in 1965 and 300,000 dispatched) is handled by three sets of vertical endless belts carrying baskets. A complete circuit of all floors takes only three and a half minutes. An indicator on each basket is 'read' by an electronic eye and the 'basket' ejected at the intended floor.

The building, which cost 62.5 million Swiss francs (approximately \$15.6 million), was built by an international labour force of about 1,000 men from 12 countries. It is situated in 17 acres of landscaped gardens with sweeping views of the Jura Mountains, the Mont Blanc range of the French Alps, the city of Geneva and the southwestern end of the Lake of Geneva.

et un bloc de logement pour les fonctionnaires. Le secrétariat, qui compte 11 étages, dont huit sont au-dessus du sol, est posé en équilibre sur de fines pyramides de béton armé. Les 961 membres du personnel de l'OMS y travaillent. Le courrier (375,000 pièces reçues et 300,000 expédiées en 1965) y est distribué par trois courroies verticales munies de paniers, qui font le tour de tous les étages en trois minutes et demie seulement. Un indicateur, placé sur chaque panier, est 'lu' par un œil électronique, et le panier est éjecté à l'étage voulu.

L'édifice, qui a coûté 62.5 millions de francs suisses (environ \$15.6 millions) a été construit avec l'aide de quelque 1,000 ouvriers de 12 nationalités différentes. Il est situé dans un parc de 17 acres d'où l'on aperçoit les monts du Jura, le massif du Mont-Blanc dans les Alpes françaises, la ville de Genève et l'extrémité sud-ouest du lac Léman.

L'Association

L'ADC proteste contre le traitement inégal que l'assurance-santé réserve aux dentistes.

Le secrétaire de l'ADC, le docteur W. G. McIntosh, a protesté une nouvelle fois auprès d'Ottawa contre l'injustice du projet de loi sur l'assurance-santé du Canada. Dans une lettre datée du 17 octobre, le Dr McIntosh a rappelé au ministre de la santé nationale et du bien-être social que l'ADC s'oppose à l'inégalité de traitement que le projet de loi C-227 établit entre les médecins et les dentistes. Il n'est ni juste ni raisonnable de diviser les soins en catégories 'incluse' et 'exclue' selon qu'ils sont dispensés par tel ou tel groupe de praticiens également qualifiés de par leurs connaissances et leur statut légal, a déclaré le Dr McIntosh.

Le représentant de l'ADC s'est vivement élevé contre la suggestion du ministère fédéral d'après laquelle les provinces pourraient ajouter les soins dentaires à leur propre régime d'assurance-santé. "Il ne devrait pas être nécessaire de s'adresser aux gouvernements provinciaux pour corriger l'injustice d'une loi fédérale."

Le Dr McIntosh a souligné la différence qui existe entre le projet de loi C-227 et l'attitude du gouvernement fédéral des Etats-Unis, qui place les médecins et les dentistes sur un pied d'égalité à propos des soins chirurgicaux en cause, grâce à une assurance complémentaire rajoutée au régime d'assurance-santé des E-U.

Il a répété que l'Association considère que le projet de loi C-227 est en contra-

diction avec les prérogatives que les lois provinciales confèrent aux médecins et aux dentistes quant à l'exercice de leur profession.

Le Dr McIntosh a fait remarquer que le projet de loi C-227

— réduirait l'offre de soins de chirurgie buccale dont le public pourrait disposer;

— serait préjudiciable à l'enseignement et à l'exercice de la chirurgie buccale;

— inciterait les chirurgiens buccaux canadiens à s'expatrier aux Etats-Unis, ce qui aggraverait le manque de dentistes au Canada.

(Voir les nouvelles plus récentes en page 709.)

Tournée dans l'Est du Président Coupland

Le président de l'ADC, le Dr J. P. Coupland d'Ottawa a rendu visite aux sociétés dentaires de l'Est du Canada au début d'octobre. Il était accompagné du secrétaire, W. G. McIntosh, de Toronto.

Leurs principales étapes ont été Québec le 29 septembre, Fredericton le 1er octobre, Charlottetown le 3 octobre, Halifax le 5 octobre, et Grand Falls (Terre-Neuve) les 7-8 octobre.

Nouvelles du Parlement

L'assurance-maladie nationale est retardée d'un an

Le ministre des Finances, l'Honorable Mitchell Sharp, a annoncé le 8 septembre, à la Chambre des Communes, une série de mesures déflationnistes, parmi les-

quelles on note la décision de retarder d'un an la mise en vigueur du régime national d'assurance-maladie.

Ce régime, qui devait être institué le 1er juillet prochain, ne le sera pas avant le 1er juillet 1968, à moins qu'il survienne une altération dans l'état de l'économie du pays.

Le gouvernement avait estimé que si les 10 provinces avaient participé au régime le 1er juillet 1967, les services des médecins auraient coûté \$680 millions par an, somme dont le trésor fédéral devait payer la moitié (environ \$340 millions). Cette évaluation est basée sur une moyenne nationale de frais médicaux de \$34 par personne, pour 20 millions de Canadiens. Les provinces auraient fourni la différence grâce à leurs ressources fiscales, aux cotisations, ou aux deux.

Approbation de principe du projet de loi sur l'assurance-santé

Le 13 octobre, le ministre de la Santé, M. A. J. MacEachen, a proposé à la Chambre des Communes de procéder à la seconde lecture du projet de loi sur l'assurance-santé (C-227). A propos de la décision, prise le 8 septembre, de retarder la mise en vigueur d'une assurance-santé nationale, M. MacEachen a expliqué que le gouvernement fédéral était résolu à réaliser ce projet le 1er juillet 1968 au plus tard. D'ici là, le gouvernement se propose d'observer attentivement la conjoncture économique et financière, et de doter la législation d'une souplesse suffisante pour pouvoir avancer la date d'entrée en vigueur si les conditions le permettent.

Au terme d'un débat-marathon, le projet reçu en seconde lecture, le 25 octobre, une approbation de principe.

Le chef de l'opposition, M. John Diefenbaker, reprocha au projet de ne pas couvrir les services des dentistes et des optométristes. Il fit savoir que les députés conservateurs réclameraient des amendements incluant les services de ces praticiens — lors de l'examen du projet de loi article par article — en troisième et dernière lecture.

Canada

Saskatchewan: un programme dentaire d'urgence

Un extraordinaire programme en cinq points, visant à développer les services dentaires en Saskatchewan, a été dévoilé le 18 juillet dernier par le ministre de la santé, M. David Stewart. Le projet prévoit:

Une augmentation de deux tiers du nombre des bourses dentaires, qui passeraient de 90 à 150. Une campagne de recrutement aurait lieu dans toutes les facultés dentaires canadiennes, et l'on demanderait aux boursiers de s'engager à ouvrir leur cabinet en Saskatchewan, une fois diplômés;

Six bourses de \$3,000 par an, offertes par le gouvernement aux dentistes qui accepteraient d'entreprendre des études post-universitaires, pour remédier au manque de spécialistes et de professeurs;

La possibilité d'ouvrir les portes de la nouvelle faculté dentaire de l'Université de Saskatchewan en 1968 plutôt qu'en 1969 comme on l'avait prévu;

La formation d'hygiénistes dentaires à la faculté dentaire de l'université, et peut-être la création d'un cours pour infirmières dentaires, comme celles que l'on emploie en Nouvelle-Zélande;

Enfin, des subventions de \$5,000 aux dentistes diplômés qui accepteraient de s'établir dans les régions où le manque de dentistes est particulièrement grave. (Il existait auparavant des prêts de \$5,000).

Le ministre de la santé, M. Stewart, aurait reçu le premier candidat à la subvention de \$5,000 le 22 juillet, et aurait déclaré que son gouvernement ne voulait rien changer à la réputation des soins dentaires de la province, "les meilleurs du monde", mais qu'il était préoccupé par "les 70 pour cent de la population qui ne reçoivent pratiquement aucun soin."

Les dentistes français réclamaient depuis longtemps la création d'un programme d'études supérieures comparable à ceux des autres pays du Marché commun européen. Le nouveau programme répond en partie à leurs vœux et vient compléter un précédent décret gouverne-

Collège royal des chirurgiens-dentistes du Canada

Examen, 1e Partie

Le Collège royal des chirurgiens-dentistes du Canada publie l'avis suivant à l'intention des dentistes qui exercent une spécialité reconnue par l'Association dentaire canadienne, mais qui ne détenaient pas, au 18 mars 1965, un certificat provincial de spécialiste, et qui ne peuvent donc pas être candidats à l'examen d'admission (2e Partie) prévu à titre transitoire et présenté dans le numéro de novembre du Journal, à la page 674.

Le Collège a fixé aux 17 et 18 mars 1967 un examen 1e Partie (connaissances théoriques). Cet examen constitue la première des étapes à franchir pour devenir membre. Les candidats doivent répondre aux conditions énoncées à l'Article 3 des règlements du Collège, qui stipule que: "Un candidat pourra, après avoir accompli les études théoriques prescrites, telles que le Collège les aura définies pour sa spécialité particulière, demander à subir la 1e Partie de l'examen, telle qu'établie par le Collège." (Les cinq spécialités reconnues par l'Association dentaire canadienne sont: la chirurgie buccale, l'orthodontie, la pédodontie, la périodontie et la prosthodontie.)

Les dentistes qui désirent se présenter à la 1e Partie de l'examen les 17 et 18 mars 1967, doivent déposer leur candidature avant le 31 décembre 1966 à minuit. La formule d'inscription ainsi qu'une brochure de renseignements sur les conditions à remplir pour l'examen, les frais, etc, seront envoyées, sur demande par le Secrétaire, le Dr J. E. Speck, Suite 614, Medical Arts Building, 170 St. George Street, Toronto 5, Ontario.

Les candidats qui seront reçus à la 1e Partie de l'examen pourront assister aux réunions du Collège, sans droit de vote. Après avoir satisfait aux conditions supplémentaires requises pour la 2e Partie de l'examen, telles que définies par le Collège, les candidats pourront demander à subir cette 2e Partie de l'examen, et être reçus membres. Le détail de ces conditions figure dans la brochure de renseignements fournie par le secrétaire.

mental (du 22 septembre 1965) instituant les Ecoles nationales de chirurgie dentaire. L'enseignement du nouveau programme sera organisé dans le cadre des nouvelles Ecoles nationales et des Facultés de médecine.

Chronique internationale

Le Dr Pedersen devient président de la FDI

Le Dr P. O. Pedersen (Danemark) a été élu président de la Fédération dentaire internationale, lors du 54ème congrès annuel qui a eu lieu du 10 au 17 juillet à Tel-Aviv (Israël). Il terminera le mandat

non achevé du Dr Knut Gard (Norvège) qui est décédé en mars dernier. Ont été élus aux autres postes, les docteurs: W. Riis Klausen (Danemark) vice-président; T. G. Meehan (Irlande) secrétaire adjoint; F. E. Lawton (Angleterre) rédacteur. Ont été ré-élus, les docteurs W. Stewart Ross (Angleterre) président-élu; G. H. Leatherman (Angleterre) secrétaire général; J. Stork (Pays-Bas) trésorier; Harold Hillenbrand (Etats-Unis) vice-président; et Hans Freihofer (Suisse) président d'assemblée.

Le congrès rassemblait 1,306 participants de 38 pays. Parmi les congressistes canadiens, se trouvaient les docteurs Herbert Caplan de Montréal, James Zimmerman de Calgary, et le secrétaire de l'ADC, W. G. McIntosh de Toronto, ainsi

que le brigadier K. M. Baird, le lieutenant-colonel L. A. Richardson, et le capitaine G. R. Nye du Corps dentaire royal canadien.

L'assemblée générale a adopté de nouveaux règlements de protection contre les radiations, qui figureront dans un nouveau manuel que doit publier l'Organisation mondiale de la Santé.

L'assemblée générale a également:

Approuvé de nouveaux principes quant aux conditions requises pour la préparation, l'exécution et l'interprétation des études cliniques contrôlées;

Décidé que la Fédération collaborerait avec la Division de l'hygiène dentaire de l'Organisation mondiale de la Santé pour préparer un mémoire sur la situation dentaire dans le monde;

Approuvé la publication d'un nouveau volume: *l'Histoire de la FDI*, présentant l'histoire de la Fédération de 1900 à 1962. Il sera mis en vente au congrès mondial de Paris, en juillet 1967, au prix de \$7.

Les premiers exemplaires du nouveau lexique dentaire de la FDI ont été exposés au congrès de Tel-Aviv. Cet ouvrage, qui contient les termes dentaires en cinq langues, sera gracieusement offert aux associations membres de la FDI, aux membres et aux conseillers des commissions, aux facultés dentaires, aux bibliothèques et aux instituts de recherche du monde entier. On peut le commander (\$10 l'exemplaire) au secrétaire général, 63/64 rue Wimpole, Londres W. 1, Angleterre.

Création en France du Doctorat en chirurgie dentaire

Le gouvernement français vient de créer un troisième cycle d'enseignement supérieur de deux ans conduisant au doctorat en chirurgie dentaire. Ces études sont destinées aux dentistes qui désirent approfondir leurs connaissances ou se préparer aux techniques de la recherche appliquée. Elles compléteront les études actuelles qui conduisent au diplôme français d'Etat de chirurgien dentiste ou au diplôme français d'Etat de docteur en médecine.

Un décret du 9 juin du ministère de l'éducation nationale précise que seuls les titulaires d'un diplôme d'Etat seront auto-

risés à entreprendre ces études. Le doctorat sera décerné aux candidats qui, après avoir obtenu les deux certificats d'études supérieures du nouveau cycle, auront soutenu une thèse avec succès.

L'ADA rédige un projet d'assurance dentaire pour les enfants

La Chambre des Délégués de l'American Dental Association a approuvé les 14-17 novembre un projet d'assurance dentaire nationale pour les enfants, qui avait été préparé par les services de l'ADA tels que ses Conseils pour l'hygiène dentaire et pour la législation, et ses Bureaux pour l'enseignement de l'hygiène dentaire, la recherche économique et les statistiques, et pour l'information du public. Le projet, mis au point à la requête du président de l'ADA a été transmis à la Chambre des Délégués lors du congrès annuel de l'ADA, en novembre. Il est le fruit d'une directive de la Chambre des Délégués de 1965, et il est destiné à mettre les soins dentaires à la portée de tous les enfants des Etats-Unis.

Le régime vise essentiellement à offrir les soins dentaires aux enfants de familles économiquement faibles. Les fonds publics ne seraient utilisés que pour les nécessaires.

Organismes dentaires

Le Dr Cloutier devient président de la Société dentaire de Montréal

Succédant au Dr Claude Madore, le Dr François Cloutier est devenu président de la Société dentaire de Montréal.

Les membres du bureau sont les docteurs Gérard Lussier, président-élu; Lucien Latour, deuxième vice-président; Jacques Casaubon, trésorier; Percy Génier, archiviste; Claude Madore, conseiller; Hubert Labelle, secrétaire; Jean-Claude Durand, secrétaire adjoint.

Ont été nommés conseillers, les docteurs Jacques Matteau, Léon Daigle, Colette

Maranda, Réginald Richard, Gilles Leduc, Yves Boivin et Guy Lahaye.

Le Dr Capelle devient président de la société Alpha Oméga de Montréal

Le Dr Michel Capelle vient d'être choisi comme président de l'Alumni Chapter de Montréal de la Fraternité dentaire Alpha Oméga. Diplômé de l'Université de Montréal en 1957, le Dr Capelle est le 15ème président de cette fraternité dentaire. Il succède au Dr H. L. Levitt, de Montréal.

Les chapitres de la société Alpha Oméga comptent quelque 10,000 membres, au Canada, aux Etats-Unis, en Angleterre, en France et en Israël.



Le docteur
Michel Capelle

Ont été élus aux autres postes, les docteurs B. L. Mendel, vice-président; E. A. Fellows, secrétaire-correspondant; A. S. Wainberg, secrétaire-archiviste; H. Ptack, trésorier; Irwin Margolese, rédacteur; M. P. Tenenbaum, rédacteur adjoint; M. M. Dines, bibliothécaire; M. Hest, historien; et R. Topolski, huissier.

Economie

Les dentistes préféreraient avoir les avantages fiscaux des sociétés, sans constituer des sociétés

Il serait contraire à l'intérêt public d'autoriser les dentistes et d'autres membres des professions de santé à constituer des sociétés à responsabilité limitée. Tel est l'argument majeur de plusieurs mémoires

adressés le 17 août à la commission ontarienne d'enquête sur le droit des sociétés.

Le porte-parole du Collège royal des chirurgiens-dentistes de l'Ontario, M. Gordon Watson QC, a expliqué que le Collège, tout en s'opposant à ce que les cabinets dentaires soient constitués en société, aimerait que ceux-ci bénéficient de quelques-uns des avantages fiscaux réservés aux sociétés.

Actuellement, une société ne peut pas obtenir de licence et ne peut exercer légalement la dentisterie ni la médecine, en Ontario. Si des sociétés étaient légalement établies, des personnes autres que des dentistes dûment enregistrés pourraient en devenir membres et pourraient influencer les tarifs d'honoraires et la qualité des soins.

Le CRCDD préconise qu'au lieu de modifier la loi des dentistes, on amende la loi de l'impôt fédéral sur le revenu afin d'établir des taux d'impôt égaux à ceux des sociétés.

Les médecins formés à l'étranger viennent renforcer les effectifs canadiens

Un rapport sur le nombre de médecins, publié par le *Journal de l'Association médicale canadienne*, révèle qu'une amélioration est survenue entre 1960 et 1965 dans la plupart des branches. Elle est "due beaucoup plus à l'arrivée massive de médecins formés à l'étranger qu'à l'apport de nos propres facultés de médecine."

Parmi les médecins qui ont reçu en 1964 l'autorisation d'exercer, la proportion de ceux qui ont fait leurs études à l'étranger est de trois sur quatre à Terre-Neuve et en Saskatchewan, deux sur trois au Manitoba, trois sur cinq en Alberta et presque un sur deux en Colombie britannique et en Nouvelle-Ecosse.

Le défaut de motivation est un des principaux facteurs de mauvaise santé dentaire

Une enquête conduite au Manitoba indique que "l'absence de services dentaires dans les régions rurales se révèle moins impor-

tante qu'on ne l'avait supposé auparavant." Le rapport 1965 du ministère de la santé manitobain déclare en effet que les parents n'ont pas le souci d'assurer à leurs enfants des traitements préventifs ou la conservation de leurs dents, et que c'est là la raison principale de la mauvaise santé dentaire des enfants des campagnes. La façon dont les gens réagissent devant les services dentaires qui leur sont offerts tous les six ou huit mois indique que, dans certaines régions, ils ne désirent rien de plus, pour eux-mêmes et pour leurs enfants, que le soulagement des douleurs et des infections buccales.

Le régime d'assurance albertain en progrès

Lors de la réunion annuelle de l'Association dentaire de l'Alberta, les membres de l'ADA ont autorisé le conseil d'administration à demander l'aide d'un actuaire pour déterminer le taux des primes d'un régime d'assurance dentaire qui est en préparation. Il s'agit d'un système de co-assurance, à converture étendue, qui sera sans doute offert au grand public.

Moins du quart des bénéficiaires utilisent le service dentaire du Bien-être social de l'Alberta

En 1965, 40 pour cent des enfants admissibles aux soins dentaires prévus par l'Alberta Pensioners' Treatment Plan ont eu recours à ces soins. Quatorze pour cent seulement des adultes ayant droit aux services sociaux en ont fait usage.

Le coût moyen par personne traitée a été de \$24.40 pour les enfants et \$27.90 pour les adultes. Le coût par bénéficiaire a été de \$2.75 pour les enfants, de \$2.14 pour les retraités et de \$7.95 pour les autres adultes.

L'Alberta Pensioners' Treatment Plan fonctionne depuis plus de 18 ans.

Le plan de garantie à vie sur la prothèse est mis de côté en Colombie britannique

Les mécaniciens dentaires de Colombie britannique ont mis de côté temporaire-

ment leur projet d'offrir au public une prothèse garantie à vie pour \$200. Le président de la Public Denturist Society de la Colombie britannique, M. George Connolly, a déclaré que le projet resterait en suspens jusqu'à ce que le parlement se prononce sur la recommandation d'un comité visant à élargir les fonctions des mécaniciens dentaires.

Actuellement, les mécaniciens de la Colombie britannique ne peuvent fabriquer que des prothèses complètes, et ne sont pas autorisés à fabriquer des prothèses partielles. Un comité parlementaire aurait recommandé d'élargir leurs attributions, mais le rapport du comité ne fut pas examiné pendant la dernière session.

C'est cette année, à l'occasion d'un congrès, que les mécaniciens ont fait connaître leur projet de prothèse garantie à vie. D'après M. Connolly, la société continuera à rassembler la documentation nécessaire pour préparer un régime complet d'assurance sur la prothèse. "Mais, pour offrir un tel régime, il faudrait que nous puissions nous charger de tout le travail de prothèse à partir du moment où l'extraction est faite jusqu'à la livraison de l'appareil de prothèse définitif," a-t-il déclaré.

Les syndicats et l'assurance dentaire

Le directeur du service des pensions, de la santé et du bien-être de l'International Union of Electrical, Radio and Machine Workers, a exposé dans un article du numéro mai-juin du *Journal of the New Jersey State Dental Society* ce que les syndicats attendent de l'assurance dentaire. Le dirigeant syndical déclare: "Le régime idéal pourrait s'exprimer en une phrase — allez chez votre dentiste et nous paierons la note . . . mais il faut être réaliste. Il faut se rendre compte de ce qui peut être payé et de ce qui peut être négocié." Il souligne les points suivants: "L'assurance dentaire . . . devrait être gérée comme une société sans but lucratif."

Le plan doit "représenter à la fois le consommateur et le fournisseur des services dentaires . . . Aucune des deux parties ne devrait le dominer. . . . La

représentation du consommateur ne devrait pas être exclusivement composée de travailleurs.”

“Les régimes ne devraient pas comporter de cotisation, comme ceux qui sont payés par l’employeur.”

“Le régime devrait offrir un choix entre plusieurs types de couverture . . . un système de services complets et de paiements complets pour ceux qui peuvent se le permettre . . . une franchise pour les groupes qui désirent quelque chose de moins perfectionné ou encore . . . un tarif d’honoraires de co-assurance, par lequel le dentiste accepte ce tarif comme paiement complet.”

Un tarif d’honoraires acceptable et raisonnable.

Comme première mesure en vue de négocier la couverture, un régime assurant une couverture partielle avec certaines exclusions serait acceptable.

La famille des participants devrait pouvoir être assurée.

Il “devrait prévoir le libre choix du dentiste.”

“Il devrait couvrir les soins préventifs . . . les examens semestriels et les prophylaxies.”

“Le régime devrait aussi assurer qu’il y ait, avant le traitement, un examen complet des besoins du patient, et une évaluation du prix.”

La société dentaire devrait “réglementer le genre de soins . . . et réglementer aussi les honoraires fixés.”

Il devrait y avoir une “réglementation” de l’utilisation pour empêcher “les soins qui ne seraient pas nécessaires.”

Les soins dentaires sont fonction du revenu familial

“Le fait d’aller chez le dentiste semble être, plus que toute autre demande de soins importants, lié au revenu familial,” d’après un rapport récemment publié dans le *Washington State Dental Association Newsletter*. Le rapport cite les résultats d’un sondage national effectué par la Health Information Foundation et le National Opinion Research Center de l’Université de Chicago.

La proportion de personnes qui ont reçu

des soins dentaires en 1963 augmente parallèlement au revenu familial. Elle part de 16 pour cent chez ceux dont le revenu est inférieur à \$2,000, et augmente jusqu’à 60 pour cent chez ceux dont le revenu familial est de \$12,500 ou plus.

Le sondage révèle aussi que les personnes qui possèdent une assurance santé, même si celle-ci ne couvre pas les frais dentaires, sont plus portées à voir un dentiste que les personnes non assurées ayant le même revenu. Ainsi, dans le groupe de revenu familial compris entre \$3,500 et \$7,449, 39 pour cent de ceux qui ont une assurance-hospitalisation ont vu un dentiste, contre 25 pour cent de ceux qui n’ont pas d’assurance-hospitalisation.

Recherches

Bourses à la Faculté de Montréal

Trois professeurs de la Faculté dentaire de l’université de Montréal se sont vu accorder des subventions de recherche s’élevant à \$48,660. Ces sommes les aideront à effectuer des recherches sur l’hygiène dentaire, la croissance et le développement d’enfants canadiens-français, sur les propriétés analgésiques des dérivés phénothiaziniques et sur la pénétration de solutions opaques dans les caries initiales de l’émail.

Dr Arto Demirjian, professeur d’anatomie, reçoit du ministère québécois de la Santé une subvention de \$35,000. Il se propose d’étudier, chez des enfants montréalais de 6 à 16 ans, issus de trois milieux socio-économiques différents, le taux DMF, l’hygiène buccale, l’incidence des maladies périodentaires et des malocclusions. Il étudiera l’éruption des dents permanentes, la résorption des dents temporaires et le développement des lésions périapicales au moyen de radiographies panoramiques. Des céphalogrammes et des modèles d’étude permettront de suivre la croissance cranio-maxillofaciale. Il mesurera également la croissance du squelette et essaiera d’établir un rapport entre les croissances squelettiques et cranio-maxillofaciales. Des recherches d’ordre sociologique, nutritif et médical devraient aussi

fournir d'importants renseignements sur le milieu de chaque enfant.

Madame Solange Simard-Savoie, professeur de pharmacologie dentaire, reçoit \$8,160 du Conseil national de la Recherche, pour poursuivre ses travaux sur la triméprazine, un dérivé phénothiazinique. Mme Savoie recherche un analgésique aussi puissant que la morphine et qui n'en comporte pas les inconvénients.

Le Conseil national de la Recherche a aussi accordé une bourse de \$5,500 au Dr Zdenek Mézl, directeur du département de biologie dentaire, qui cherche un moyen d'arrêter les caries en reconstituant la progression des caries de l'émail. Sa bourse lui permettra d'appliquer la microcinématographie accélérée à la recherche de la pénétration de colorants dans ces lésions.

Le fluor sous forme de gelée, un bon inhibiteur de carie

On a signalé, lors de la réunion du 30 août à Toronto de l'American Academy of Pedodontics, qu'une gelée au fluor avait réduit de 80 pour cent la carie dentaire. Le Dr H. R. Englander, du US National Institute of Dental Research, a déclaré aux 400 pédodontistes canadiens et américains présents à la réunion que les premiers essais effectués chez des écoliers, à la suite de recherches satisfaisantes sur des animaux de laboratoire, sont très encourageants.

Au cours d'une étude de deux ans, les enfants portèrent chaque jour de classe et pendant six minutes, un appareil buccal en matière plastique, semblable aux appareils protecteurs des sportifs et rempli d'une gelée de fluorure de sodium à 1.1 pour cent. Un hygiéniste dentaire put s'occuper de plusieurs centaines d'enfants. Cette technique, dit le Dr Englander, est très prometteuse, si l'on tient compte du manque de dentistes et de personnel auxiliaire, puisque grâce à elle les hygiénistes dentaires peuvent s'occuper d'un nombre d'enfants beaucoup plus grand que ne le permettent les méthodes actuelles d'application topique de fluor.

L'étude a été effectuée à Cheektowaga

(Etat de New York), ville dont le service d'eau n'est pas fluoré. Le taux de fluor que son eau renferme naturellement est très inférieur au taux recommandé pour prévenir la carie.

Cinq cents enfants, âgés de 11 à 14 ans, participèrent à l'étude. Dans un groupe de 151 enfants utilisant une première sorte de gelée de fluor et dans un autre groupe de 154 enfants, utilisant une gelée de fluor de formule différente, on ne releva respectivement que 0.9 et 1.1 de dents cariées, obturées ou absentes, alors que le chiffre fut de 4.4 chez les 195 enfants qui n'employaient pas la gelée. Les enfants utilisaient tous des dentifrices sans fluor.

Les dents temporaires perdues au cours de l'étude renfermaient une concentration de fluor nettement plus forte dans les groupes utilisant la gelée, ce qui prouve encore une fois que le fluor renforce les dents et les rend plus résistantes à la carie.

On effectua également des tests sur l'innocuité de cette méthode d'application topique. Les analyses d'urine, entre autres, ne révélèrent aucune différence importante du taux de fluor, ce qui montre que le fluor était resté dans la dent où il exerçait son action protectrice.

Le docteur Englander rapporte que de nombreux enfants présentaient des caries énormes lors du premier examen, et qu'aucune cavité nouvelle ne s'était développée pendant la durée de l'étude. Il est d'avis que cette technique nouvelle sera particulièrement utile pour les enfants atteints de caries graves.

A propos des avantages de l'appareil buccal, le Dr Englander fit observer qu'une petite quantité de gelée concentrée reste au contact de la dent et de la gencive pendant un certain temps, pénètre dans les creux et fissures et ne peut pas être diluée par la salive.

Une étude semblable à celle-ci est prévue chez des enfants d'une région où l'eau est fluorée pour déterminer si les applications topiques répétées apportent une protection supplémentaire. Enfin une autre étude déterminera les résultats obtenus avec des applications hebdomadaires au lieu de quotidiennes.

The Association

Dr. McIntosh Reiterates Dissatisfaction over Bill C-227

CDA Secretary W. G. McIntosh has again protested to Ottawa over the discriminatory nature of the Canada medicare bill. In a letter sent October 17, Dr. McIntosh again reminded the Minister of National Health and Welfare of the CDA's objection to the unequal treatment of physicians and dentists under Bill C-227. It is neither just nor reasonable to divide services into 'included' and 'excluded' categories according to which of two equally competent groups of academically and legally qualified practitioners provides the services, said Dr. McIntosh.

The CDA official also reacted strongly to a federal hint that the provinces could add dental coverage to their own provincial medicare plans. "It should not be necessary to look to the provincial governments to redress the discriminatory nature of the federal legislation," said Dr. McIntosh.

He drew a sharp contrast between Bill C-227 and the attitude of the US federal government which accords equal treatment to physicians and dentists in the provision of stated surgical services under supplementary insurance of the US medicare program.

He reiterated the Association's view that Bill C-227 is inconsistent with practice prerogatives conferred on physicians and dentists by provincial practice acts.

Dr. McIntosh pointed out that Bill C-227:

Will restrict the availability of oral surgery service to the public;

Will harm dental education and the practice of oral surgery; and

Will induce Canadian oral surgeons to move to the United States, thereby aggravating the scarcity of dentists in Canada.

(For latest developments, turn to page 712.)

Dental Services Committee Maps Action for National Children's Dental Health Program

The first step toward development of a national children's dental health program was taken October 20-21 at a meeting of the CDA Dental Services Committee. This action came in response to a directive from the 1966 Board of Governors meeting which directed the "Dental Services Committee, in consultation with other interested councils, committees, sections and corporate members, to develop a dental health plan that will be in the best interests of the health of the children and all other concerned groups."

Following a preliminary review of comments which had been received from several dental groups and individuals, the committee decided to:

Develop principles which would serve as guidelines for a national children's dental health program, and

Compile information on numbers of children and their dental needs preparatory to the development of specific program designs.

In other actions, the committee also initiated steps to:

Compile information on available dental welfare plans in Canada with a view to developing principles that are applicable to such plans, and

Seek opinions from corporate members in preparation for a revision of the current CDA policy statement on 'Projection of dental services in Canada.'

Attending the meeting were H. G. Petapiece, Parksville, British Columbia,

Royal College of Dentists of Canada: Part I Examination

The Royal College of Dentists of Canada has issued the following information for dentists who practise a specialty recognized by the Canadian Dental Association but did not hold provincial specialist certification as of March 18, 1965 and who therefore are *not* eligible for the special interim (Part II) fellowship examination described on page 566 of the September issue of the Journal.

The Royal College has scheduled a Part I (Basic Sciences) examination for March 17-18, 1967. This examination constitutes partial fulfilment of the requirements for fellowship. Eligible candidates are those dentists who qualify under Section 3 of the By-laws of the Royal College which specify that, "A candidate may, on completion of the prescribed formal study as laid down by the College for his particular specialty, apply to take the Part I examination as set by the College." (The five specialties recognized by the Canadian Dental Association are: oral surgery, orthodontics, paedodontics, periodontics and prosthodontics.)

Applicants who wish to take the Part I examination March 17-18, 1967 must submit their applications before midnight, December 31, 1966. Application forms and a brochure giving each candidate guidance as to examination requirements, fees, and so forth, may be obtained from the secretary, Dr. J. E. Speck, Suite 614, Medical Arts Building, 170 St. George Street, Toronto 5, Ontario.

Applicants who are successful in the Part I examination are eligible to attend meetings of the College, without the right to vote. On completion of the additional requirements for the Part II examination, as set by the College, applicants may apply to take the Part II examination prior to election as fellows. Details of these requirements are found in the examination brochure obtainable from the secretary.

chairman; J. M. Carefoot, Oshawa, Ontario; P. E. Currie, London, Ontario; A. H. Ervin, Dartmouth, Nova Scotia; Henri Hamel, Quebec City; Gunnar Lie, Weston, Ontario; C. B. Allaby, Moncton, New Brunswick; and R. A. Connor, Department of National Health and Welfare, Ottawa.

Insurance Committee Meets

The Canadian Dental Association's Special Advisory Committee on Commercial Insurance has expressed "current satisfaction with the terms and conditions of [CDA-sponsored insurance and retirement] plans now being offered to CDA members." This verdict came at the end of an exhaustive examination of all CDA-

sponsored plans. Members of the insurance committee—who are now trustees for these plans—reviewed the entire program with the plans' administrator during a two day meeting at CDA headquarters October 31 and November 1.

The committee also requested that an audit be carried out on Professional and Industrial Pensions Limited (the agency that administers CDA-sponsored plans) to verify that (1) all funds paid to PIPL by dentists are transferred to the proper insurance or trust company at the proper time and in the manner and amount designated; (2) unearned premiums, received following the death of an insured participant or for any other cause, are returned to the insured or his estate; (3) all such moneys are correctly accounted for and refunds or rebates due to dentists are

duly made; (4) PIPL and its employees are adequately bonded; and (5) funds which are deposited to PIPL, pending transfer to the appropriate insurance or trust company, are properly protected.

Noting the difficulty some dentists have in obtaining satisfactory malpractice liability insurance, the committee urged that all corporate members of the CDA develop group liability coverage for their members.

In other actions, the committee:

Reaffirmed and amplified with explanatory comment the seven point policy statement of principles governing the Association's participation in commercial insurance (this statement was originally adopted by the Board of Governors in 1964); and

Agreed to seek a further joint meeting with the Insurance Committee of the Royal College of Dental Surgeons of Ontario on January 6, 1967 to formulate terms of reference for a comparative survey of the operations of Professional and Industrial Pensions Limited and Canadian Dental Service Plans Incorporated. Such a survey had been requested in a resolution submitted by the RCDS to the CDA Board of Governors in 1966.

Attending the meeting were P. S. Christie of Halifax, chairman; R. L. Rasmussen, Calgary; D. C. Steeves, Moncton, New Brunswick; O. F. Wright, Vancouver; George Zimmerman, Montreal; O. J. Yule, Toronto; K. F. Pownall, Toronto; W. J. Spence, Toronto; and J. T. Staddon, PIPL administrator, Toronto.

Moratorium on Recognition of New Specialties Now in Effect

As reported on page 501 of the August issue of the Journal, a moratorium on the recognition of new specialties by the Canadian Dental Association is now in effect. The applicable resolution of the Board of Governors, published on page 180 of the 1966 *Transactions*, is as follows:

"Whereas concern has been expressed that, for the public good, too many specialties may develop, therefore be it

"Resolved that the existing policy of this association with respect to specialties be reviewed, and be it further

"Resolved that a moratorium be declared on the recognition of any additional specialties until the report of the review has been presented to the Board of Governors."

News from Parliament

Canada Medicare Bill Approved in Principle

Health Minister A. J. MacEachen rose in the House of Commons October 13 to move second reading of the Canada medicare bill (C-227). Referring to the September 8 decision to delay implementation of the national medicare program (reported on page 623, October Journal), Mr. MacEachen explained that the federal government is determined to proceed with the program not later than July 1, 1968. In the meantime the government intends to keep financial and economic conditions under close scrutiny and will imbed sufficient flexibility in the legislation to advance the date of implementation if future conditions make that possible.

A subsequent marathon debate concluded October 25 when the House voted for the bill on second reading—approval in principle.

Opposition Leader John Diefenbaker attacked the bill for failing to include the services of dentists and optometrists. He indicated that Conservative members would press for amendments to include these practitioners when the House begins clause-by-clause study — third and final reading—of the bill.

(For latest developments, turn to page 712.)

Diefenbaker, Thompson Assail Dentist Exclusion in Bill C-227

Opposition Leader John Diefenbaker and Social Credit Leader Robert Thompson strongly criticized the discriminatory aspects of the Canada medicare bill (C-227) during debate on second reading of the bill in the House of Commons on October 25.

Relevant portions of their comments together with those of the Minister of

National Health and Welfare are reproduced herewith:

Mr. Diefenbaker (PC-Prince Albert): What about dental surgeons? I am not saying that dentistry should be included in a medicare plan, but I do say that there should be included oral surgery on the part of dentists. As far as the dental profession is concerned, it does not ask that all dental services be included, but it does ask that those who perform operations and are trained to perform operations in oral surgery should not be denied the right to inclusion under the act. If this is not the case, the dental surgeons across Canada who perform oral surgery will find themselves discriminated against in that people requiring their services will have to go to a physician and surgeon to do what the oral dental surgeon is in fact trained to do.

Mr. Thompson (SC-Red Deer): The Minister made two other points, and I should like to comment on these briefly because I find myself in partial disagreement with them. The Minister has said that this legislation is limited to paying half the cost of the services of physicians. I presume he means by this medical practitioners. He estimated that cost to be \$28 per capita, half of which is \$14. It seems to me that if this legislation really is intended to cover the cost of health care in so far as those who administer health care are concerned, then it would not be so confining as it is. Why does it not include dentists; why does it not include optometrists, chiropractors and osteopaths? These are licensed professions rendering health service. Certainly if we are to take care of the over-all health, as it relates to health services, we cannot separate the care of the eyes, the teeth, and the specialized care given by the chiropractors and osteopaths.

I think therefore this legislation is much too restrictive. It does not accomplish what it gives the impression it intends to accomplish. Certainly it should be more inclusive. This afternoon I received a telegram — and I believe most members of the house must also have received it — from G. P. Holton, president of the Ontario Division of the Canadian Chiropractic Association urging that clauses 2(d) and (f) of Bill C-227 be amended to include chiropractors. I am sure the discrimination to which he refers would also include optometrists, dentists and osteopaths as well. I expect this will be considered very carefully at the committee stage and that there will be amendments proposed in this regard to various clauses in the bill. At the present time I cannot agree to the bill in its limited form.

Mr. MacEachen (Minister of National Health and Welfare): During the debate no person that I recall questioned the desir-

ability of portability; no member of the house questioned the desirability of comprehensive coverage in respect of physicians' services. Indeed a number of members urged that we ought to extend coverage by including, if not additional professions, at least the services provided by additional professionals.

... Health care services include medical, surgical, obstetrical, optical, dental and nursing services. The definition includes drugs, dressing, prosthetic appliances and any other items of health services necessary to, or commonly associated with, the provision of the specified service. It is clear, therefore, that the Canada Assistance Plan makes comprehensive provision for all health services that may be required by persons in need.

I should note also, Mr. Speaker, that the Canada Assistance Plan is effective as of April 1, 1966. Any costs incurred by the provinces after April 1 of this year with respect to persons in need are shareable by the federal government.

It might also be mentioned that there is a special provision in the act which enables the provinces to claim for the costs of health care services provided to persons who receive assistance under any one of a series of acts, notably the Old Age Assistance Act, the Blind Persons Act, the Disabled Persons Act or the Old Age Security Act. This section provides that costs for such persons may be claimed retroactively to April 1 provided — and I now reply to the question of the hon. member for Ontario (Mr. Starr) — that a test of need is applied at any time prior to March 31, 1967. This provision will be helpful to the provinces in alleviating the burden of providing health care services.

Canada Assistance Plan Covers Dental Care

Ottawa will share the cost of health care services, including dental services, provided to persons in need under provincial legislation. Details of the new cost sharing formula are contained in the Canada Assistance Plan (Bill C-207) passed by the House of Commons July 8, 1966.

The act also contains a special provision which enables the provinces to claim for the cost of health care services provided to persons who receive assistance under several other acts, notably the Old Age Assistance Act, Blind Persons Act, Disabled Persons Act and Old Age Security Act. This section provides that costs for such persons may be claimed retroactively to April 1 provided a needs test is applied at any time prior to March 31, 1967.

International Items

Michigan Dentists Develop Plan to Curb Children's Dental Disease

A comprehensive dental program for all Michigan children has been formulated by the Michigan State Dental Association.

The plan is the first to be offered in any individual state and outlines specific methods of achieving the highest dental health potential for every child regardless of family income, geographic location, national origin, race or creed.

Known as the Dental Health Care Program for Michigan Children, the program stresses concurrent educational, remedial, and preventive measures, with fluoridation as the primary means of mass prevention.

The program emphasizes that responsibility for the maintenance of good dental health rests primarily with the family. The Michigan association feels the available financial resources of individual families and communities throughout the state, with the aid of state and national agencies when necessary, are sufficient to underwrite the program's cost.

Under the proposals, families with sufficient income would be encouraged to seek and maintain good dental health through their own financial resources. The increased availability of dental prepayment plans will help families budget for dental care. Underprivileged children would be cared for through co-ordinated programs of private and public assistance.

Faced by what it terms a "staggering backlog of accumulated need," the association cautions that immediate and full implementation of its program would overload the dental facilities now available in the state. Instead, it recommends introduction of the program in manageable steps.

Dental treatment would be initiated with three year olds. A new group of three year olds would come under the program each year. Thus, on a cumulative basis, the plan's time-table calls eventually for the care of three million Michigan children age 3-17 each year.

Through activity sponsored by local, private and public agencies, educational

efforts would begin immediately and be aimed at all age groups. In fact, the association recommends the educational phase begin with instruction for expectant mothers.

Canada and the Provinces

Dr. Macdonald, UBC President, Resigns Vancouver Post

Canada's first and only dentist to serve as a university president has announced his intended resignation. According to an October 27 Canadian Press report, J. B. Macdonald, president of the University of British Columbia for the past five years, said he will step down from his post June 30, 1967. There has been no decision on a successor.

Dr. Macdonald's decision was contained in a letter to Mr. Justice Nathan Nemetz, chairman of UBC's Board of Governors, dated October 20. In it the UBC president reportedly cited his conviction that periodic changes in leadership are in the best interests of the university. He intends to devote his energies to other tasks in the field of education.



J. B. Macdonald

Dr. Macdonald, 48, came to UBC from Harvard where he was head of the Forsyth Dental Infirmary. The Toronto born dentist holds a dental degree from the University of Toronto, a master's degree from the University of Illinois and a PhD in oral microbiology from Columbia University.

Dental Organizations

Dr. Boudreau Succeeds Dr. O'Brien as President of NB Society

Dismas Boudreau of Edmundston was elected president of the New Brunswick Dental Society at the group's annual meeting in Fredericton October 1. He succeeds W. B. O'Brien of Fredericton.

A. J. Coughlan of Saint John was selected honorary president and R. B. DeWare, Moncton, was named vice-president.

M. J. Crompton, Moncton, continues as secretary - treasurer. Representatives to the CDA Board of Governors are J. F. Edgecombe of Saint John and G. G. Orser (alternate) of Fredericton. R. B. DeWare is the New Brunswick delegate to the National Dental Examining Board of Canada and G. L. Ramsay, Saint John, is his alternate. S. K. Wetmore, Lancaster, continues as provincial correspondent of the *Journal of the Canadian Dental Association*.

Special dinner guests at the annual meeting were CDA President J. P. Coupland and Secretary W. G. McIntosh who addressed the assembled delegates and their wives.



Dismas Boudreau



Michel Capelle

Montreal Alpha Omega Selects Dr. Capelle

Michel Capelle was recently installed as president of the Montreal Alumni Chapter, Alpha Omega Dental Fraternity. A 1957 graduate of the Université de Montréal, Dr. Capelle is the fifteenth presi-

dent of this dental fraternal organization. He succeeds H. L. Levitt, Montreal.

Alpha Omega has some 10,000 members in chapters throughout Canada, the United States, England, France and Israel.

Also elected were: B. L. Mendel, vice-president; E. A. Fellows, corresponding secretary; A. S. Wainberg, recording secretary; H. Ptack, treasurer; Irwin Margolese, editor; M. P. Tenenbaum, associate editor; M. M. Dines, librarian; M. Hest, historian; and R. Topolski, sergeant-at-arms.

Toronto Alpha Omega Annual Lecture Slated for January 16, 1967

New York oral surgeon Harry Seldin will deliver the annual Alpha Omega lecture in the auditorium of the Faculty of Dentistry, University of Toronto, at 8.15 p.m. on January 16. The subject will be "The Conservative Treatment of Cysts." All dentists are invited to attend.

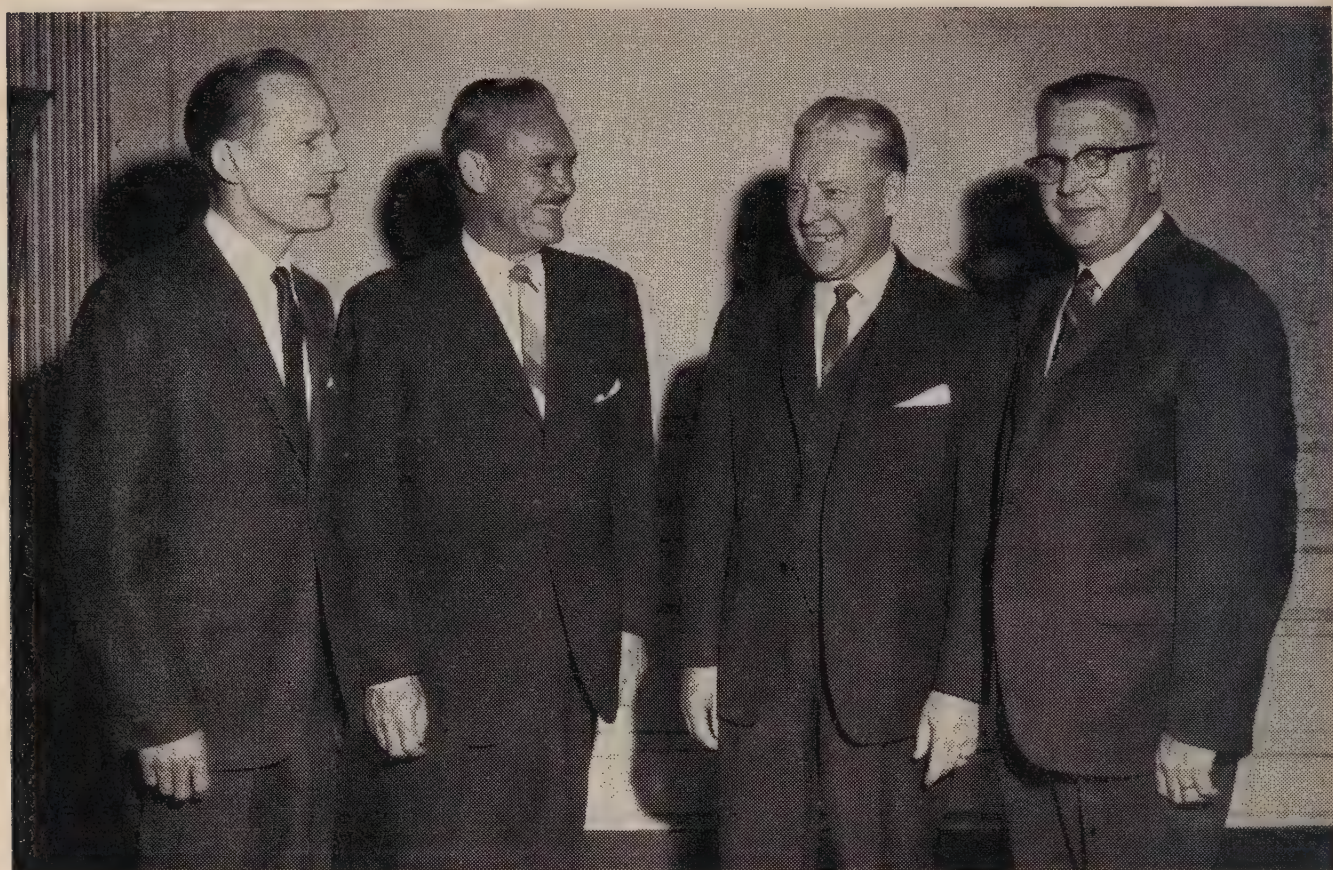
Regina Society Elects Officers

J. A. B. Robinson was installed as president of the Regina and District Dental Society on September 21. Other officers for the 1966-67 year are: W. F. Reiger, vice-president; G. B. White, treasurer; and D. F. Duperon, secretary.

Western Dental Officials Meet in Edmonton

Presidents, vice-presidents and secretaries of dental organizations in the four western provinces held their annual meeting in Edmonton September 10-11.

Among the topics discussed were: financial support for the Canadian Dental Association; progress of dental service corporations; dental mechanics; denture clinics in British Columbia and Manitoba; recruitment of dentists and provision of dental services in rural areas; provincial licensure examinations; scholarships, bursaries and loans for dental students and dentists; continuing education; specialization; welfare dental services; hos-



The president and secretary of the Canadian Dental Association visited Halifax October 5 during the recent annual eastern presidential tour. This photograph, taken at a reception tendered for the association officers, shows l. to r.: D. C. Eaton, Halifax, Nova Scotia delegate to the CDA Board of Governors; CDA Secretary W. G. McIntosh, Toronto; CDA President J. P. Coupland, Ottawa; and J. E. Merritt, president, Nova Scotia Dental Association. Senior dental students from Dalhousie University attended the reception and dinner at the Lord Nelson Hotel, Halifax, as guests of the Nova Scotia Dental Association.

pital dental services; public relations; and financial aid to the Fluoridation Committee of the Health League of Canada.

Special guests at this year's meeting included J. Donovan Ross, minister of health, Alberta; C. H. Witney, minister of health, Manitoba; and C. H. McCormick, director of dental services, Manitoba.

Next year's meeting will be held in Saskatchewan.

Canadian Dental Schools

Begin UWO Dental Building Construction

The ground breaking ceremony for the University of Western Ontario's new Dental Sciences Building was held in London, Ontario, September 27, 1966.

Ontario Health Minister M. B. Dymond performed the ceremony assisted by G. E. Hall, UWO president and vice-chancellor, O. H. Warrick, UWO vice-presi-

dent (health sciences), and W. J. Dunn, dean of the Faculty of Dentistry.

The nine-level Dental Sciences Building will link UWO's new Medical Sciences Building (1965) with a university teaching hospital now in the planning stage.

The lower-ground, ground and first floors of the dental building will be occupied by clinical, laboratory and supporting facilities for dentistry.

On the ground floor there will be a public clinic with 104 dental cubicles where third and fourth year students will perform treatment. This floor will also have several small treatment rooms and facilities for oral surgery, oral diagnosis and radiology equipment. Also on the ground floor will be a large graduate clinic and a dental hygiene clinic with two patient treatment areas.

The second floor will be taken up by pharmacology and physiology departments and a visual aids section.

Bacteriology and biochemistry depart-



Shown at the ground breaking ceremony for the University of Western Ontario's Dental Sciences Building September 27, 1966 are l. to r.: W. J. Dunn, dean, Faculty of Dentistry; Very Rev. E. P. La Rocque, dean, King's College; Hon. M. B. Dymond, Ontario Minister of Health; G. E. Hall, UWO president; Rev. J. G. Morden, principal of Huron College; and O. H. Warrick, UWO vice-president of health sciences.

London Free Press photo

ments will occupy the third floor while pathology and anatomy departments will be situated on the fourth floor. Animal quarters and a medical research area will be located on the fifth floor.

The building will have complete facilities for closed circuit television, making it the first at UWO to be completely prepared for extensive use of television.

Target date for completion of the \$8,-430,000 dental building is the early summer of 1968.

Royal Canadian Dental Corps

Test New Portable Equipment

The Royal Canadian Dental Corps is field testing new US-developed high-speed portable dental operating units presently being used by the American armed forces in Viet Nam.

The unit is contained in two portable chests. The operative console is in one chest and the air supply unit is in the other. All equipment in the operative

console is designed to operate without dependence on electrical power sources. Air pressure is supplied from the 110 volt generator compressor unit.

The operative console contains a saliva ejector, vacuum cuspidor with water flush, and an evacuator syringe with tips. There is a water supply tank with a syringe for air as well as a vacuum system effluent collector. The handpiece with contra-angle is air bearing and there is a Midwest air drive straight handpiece with tray stand and instrument holder. This self contained lightweight operative unit is designed to augment the Corps' present A and B kits with high-speed equipment to perform any required operative or oral surgical procedure under field conditions.

Economics

Alberta Corporation Joins US Association of Dental Service Plans

The National Association of Dental Service Plans, Chicago, has accepted the Al-

berta Dental Service Corporation as an affiliate member of NADSP. The Alberta corporation is the first to join NADSP which is a co-ordinating agency for US dental service corporations. NADSP was created so that profession-sponsored service corporations could effectively compete in the dental prepayment market.

All 11 US dental service corporations actively engaged in administering prepayment programs have joined NADSP as active members. Also eligible for membership are:

Dental service corporations which are not yet administering programs or which delegate this administration to commercial carriers or similar agencies (associate members);

Constituent dental societies of the

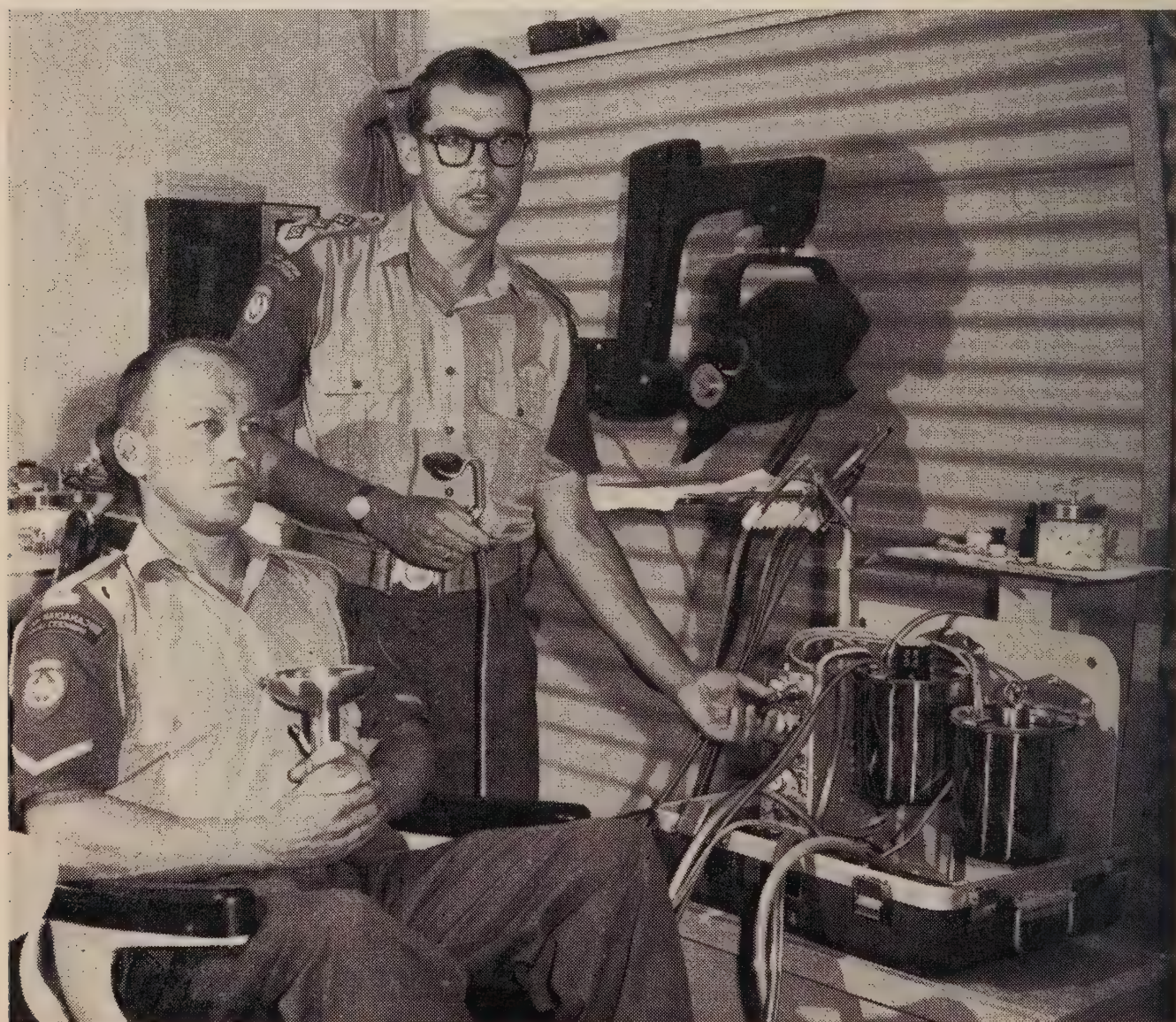
American Dental Association (constituent society members); and

Any non-profit dental care plan located outside the US which complies with NADSP's standards (affiliate members).

Canadian dental service corporations, like the Alberta corporation, are eligible for affiliate membership upon obtaining certification of approval from their national or provincial dental society. Actual operation is not a prerequisite of affiliate membership.

Lifetime Denture Care Plan Shelved in BC

British Columbia dental mechanics have temporarily shelved a proposal to offer



Capt. G. R. Nye (centre) tests high-speed portable dental operating equipment at the Royal Canadian Dental Corps Clinic in Cyprus.

the public lifetime denture guarantees for \$200 as reported on page 571 of the September Journal. George Connolly, president of the Public Denturists Society of British Columbia, said no action will be taken on the proposal until the legislature acts on a committee recommendation to broaden the function of dental technicians.

At present, BC dental mechanics are allowed only to make full dentures and cannot make partial dentures. A legislative committee has reportedly urged that they be permitted a broader field of work but the committee's report was not dealt with at the last session.

The mechanics made their proposal for lifetime denture guarantees at a convention earlier this year. Connolly said the society will continue to gather information needed to present a comprehensive proposal on a denture care scheme. "But to offer such a plan we would have to be able to handle all denture work from the time the extraction is made to supply of the final set of dentures," he said.

Awards and Honours

C. D. Beierl, E. G. Berry, F. W. Canning, L. R. Davison, R. J. Godfrey, G. A. Lee, W. C. Leggett and E. F. Whaley were made honorary members of the Academy of Dentistry (Toronto) when that organization held its opening annual dinner on October 27.

H. S. Crosby, professor of operative dentistry at Dalhousie University, Halifax, was recently appointed professor emeritus of dentistry upon retirement from the university.

Public Health

Canadian Society of PH Dentists Formed

A new organization linking public health dentists from coast to coast has been

formed in Canada. Known as the Canadian Society of Public Health Dentists, the new group was formally established at a meeting in Halifax June 15.

R. A. Connor, dental consultant, Department of National Health and Welfare, was selected first president of the society. J. J. Marineau, Chomedey Est, P. Quebec, is president-elect. J. M. Conchie, Cloverdale, British Columbia, is secretary and T. J. Gavriloff, Edmonton, is treasurer.

A meeting of the group has been scheduled during the CDA national convention May 14-17, 1967 in Toronto.

Deaths

Clug, Bernard. 64. New York City. Columbia University, 1924. Associate member CDA.

Colbourne, Ralph Henry. 68. Vancouver. University of Oregon, North Pacific College, 1926. 19-10-66. Survived by Mrs. E. A. Colbourne (wife).

Dean, Harold R. 63. Sussex, New Brunswick. Registered under New Brunswick Dental Act, 1942. 28-10-66. Survived by Jennie (wife), stepmother and two brothers.

Erickson, Reynold Albert. 49. Toronto. University of Toronto, 1941. 29-10-66. Survived by Mary (wife), one son, one daughter, mother, two brothers and two sisters.

Findlay, David William. 44. North Burnaby, British Columbia. McGill University, 1951. 16-10-66.

Hocking, H. John. 64. Kelowna, British Columbia. University of Oregon, North Pacific College, 1927. 16-10-66.

Jackson, Earl Clifton. 69. Hamilton, Ontario. Royal College of Dental Surgeons of Ontario, 1923. 15-10-66.

McLaurin, Lloyd Drake. 82. Edmonton. Royal College of Dental Surgeons of Ontario, 1916. 20-10-66. Survived by two brothers and four sisters.

Smith, Harold Bond. 52. Vernon, British Columbia. University of Oregon, North Pacific College, 1941. 15-10-66.

The Nature of Orthodontic Diagnosis

S. L. Horowitz and E. H. Hixon. St. Louis, The C. V. Mosby Company, 1966. 393 p. Illus. \$19.50

It is a pleasure to find a modern orthodontic text devoted entirely to a consideration of diagnosis. This is a book for orthodontists. It presents a rational approach to the one common problem encountered in every patient who receives orthodontic treatment — the diagnosis. Unless the diagnosis is correct, all that follows must fall short of optimal results.

The authors have combined their talents in a most pleasing way, and have made generous use of outside contributors who present highly authoritative chapters on special related topics. The text, therefore, provides the student of orthodontics with a sweeping '12-man view' of the diagnostic problem.

An orderly approach is fundamental to the scientific method, and modern diagnosis must follow a similar pattern. The text is therefore logically divided into three broad divisions: biological foundations, interdisciplinary considerations, and the approach to orthodontic problems.

The flow of ideas between these three divisions is smooth and easy to follow; the reader is never left with the feeling that something doesn't fit. This continuity is especially to be admired in a single volume that deals with the thoughts of 12 different people.

The chapters on genetic variability and function of the neuromuscular system are outstanding. The latter chapter was particularly impressive because it gives a much needed explanation of the principles underlying the electromyographic studies that are reported so frequently in current orthodontic journals.

Dr. Horowitz has a wide knowledge of the problems associated with cleft palate. Therefore it is not surprising to find an excellent chapter devoted to this topic — including classification, aetiology, surgical and orthodontic procedures, and speech.

Another chapter on facial deformity provides an up to date view of the numerous surgical procedures employed to assist the patient with mandibular prognathia. This chapter, a joint writing by Dr. Horowitz

and an eminent plastic surgeon, Dr. Converse, presents a well rounded viewpoint on this controversial subject.

The final section of the book is the best of all. Here the authors pull together the wealth of knowledge discussed in earlier chapters and apply it directly to orthodontic diagnostic problems. It contains comprehensive chapters on the theory underlying cephalometrics; the prediction of facial growth; norms, classification, and treatment goals; and finally the excellent last chapter entitled "An approach to diagnosis and implications for treatment."

This is a well written text that clearly states an authoritative modern view of orthodontic diagnostic problems. Its mood is aptly expressed in a quotation at the start of Chapter 18 — "Diagnosis is research . . . treatment is experiment."

R. E. Cline

Environmental Variables in Oral Disease

S. J. Kreshover and F. J. McClure, ed. Washington, D.C., American Association for the Advancement of Science, 1966. 312 p. Illus. \$8.75

This book is a compilation of 17 papers presented at a symposium on environmental factors influencing oral disease which was organized by the American Association for the Advancement of Science in 1964. The contributors are specialists in their particular area of study and research. The subject material is a comprehensive review of experimental and clinical investigations and findings relating to oral disease. It falls into four general categories: (1) geographical and clinical considerations of environmental variables and oral disease, (2) nutrition and dental caries, (3) experimental considerations in oral soft tissue lesions, and (4) prenatally induced oral-facial malformations.

This excellent review of the present status of knowledge of oral disease is interesting to read and study and highly recommended to students, teachers, and those interested in research. To the reviewer, it points up that a great deal is still unknown about the factors underlying dental health and disease.

J. Kreutzer

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